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SHIP BUILDING IN THE UNITED KINGDOM.

From the returns compiled by Lloyds Register of Shipping, it appears that, excluding warships, there were 515 vessels of 1,355,756 tons gross under construction in the United Kingdom at the close of the quarter ended Dec. 31, 1905. The particulars of the vessels in question are as follows, similar details being given for the corresponding period of 1904 for the purpose of comparison:

Description.	No.	Gross tonnage.	No.	Gross tonnage.
Steam.				
Steel	485	1,350,279	368	1,037,288
Iron	1	500	1	250
Wood and Composite ..	1	60	2	250
Total	487	1,350,839	371	1,037,788
Sail.				
Steel	12	2,940	13	10,162
Iron	..		1	180
Wood and Composite ..	16	1,977	18	1,730
Total	28	4,917	32	12,072
Total Steam and Sail....	515	1,355,756	403	1,049,860

The tonnage under construction has shown a steady increase since December, 1903, and the present figures are within 57,000 tons of the total reached in September, 1901, which is the highest on record. As compared with the return for the September quarter the figures show an increase of 30,000 tons, while the June quarter's total is now exceeded by 54,000 tons. Of the vessels under construction in the United Kingdom at the end of December, 400 of 990,499 tons are under the supervision of the surveyors of Lloyds Register with a view to classification by this society. In addition, 48 vessels of 128,602 tons are building abroad with a view to classification. The total building at the present time under the supervision of Lloyds Register is, thus, 448 vessels of 1,119,101 tons. Details of this total follow:

	No.	Gross tonnage.
Building in United Kingdom for home account, for sale, etc.....	348	892,021
Building in United Kingdom for foreign and colonial account.....	52	98,478
Building abroad for United Kingdom Owners	4	800
Building abroad for foreign account.....	44	127,802
Total building on Dec. 31 for classification in Lloyds Register Book.....	448	1,119,101

SUIT TO RECOVER BIG SALVAGE.

A suit to recover \$100,000 from the Pacific Coast Steamship Co. and underwriters has just been filed in the United States District Court at San Francisco by Sudden and Christenson, the owners of the steam-schooners Chehalis and Norwood.

On the last voyage of the City of Pueblo from Seattle to San Francisco, she broke her propeller shaft when off Cape Flattery and became helpless. The weather was very heavy, and the vessel was in great peril. Including the ship's crew, there were 200 persons on board, besides a valuable cargo. After being disabled for nearly thirty hours, the small steam-schooner Charles Nelson came to the Pueblo's assistance. But in attempting to tow the large, heavy steamer, the Nelson burst one of her steam pipes and was finally compelled to abandon the steamship. Later, the small steamer Chehalis sighted the Pueblo, and, after very great difficulty and peril, in getting hold of a tow hawser in a heavy gale, started for San Francisco. Soon after, the steamer Norwood came to the assistance of her sister vessel—the Chehalis—and after several days of common peril, and heavy towing, these small vessels managed to bring the Pueblo into port.

As there is some dispute as to the question of salvage, the owners of the Chehalis and Norwood have begun a suit, laying the value of their services at the sum of \$100,000. It is claimed that the value of the Pueblo is \$400,000, and that her cargo is worth \$95,000 more. To complicate matters further, the owners of the steam schooner Nelson have commenced a heavy suit against the P. C. S. S. Co. claiming that the Nelson sustained serious damages while endeavoring to tow the Pueblo, by bursting a steam pipe, and that she was disabled and had great difficulty in reaching the home port—San Francisco.

Both of these suits will be strongly contested by the steamship company.

An examination of the Pueblo shows that she has been seriously damaged, the low pressure cylinder and low pressure crank having been cracked, as a result of the racing following the breakage of the tail-end of the propeller shaft. The tail-shaft, the stern tube, and the stuffing box are all badly wrecked. It is estimated that repairs will cost \$70,000, and will place the Pueblo out of commission for at least three months.

THE CABLE REPAIR SHIP RESTORER.

The British cable-repair steamship Restorer, employed by the various submarine cable companies having wires across the Pacific, in looking after their lines has just arrived at San Francisco after remaining nine months in the harbor of Honolulu. The long sojourn in tropical waters has fouled the hull of the Restorer so that the vessel is badly in need of docking. The vessel will remain several months at San Francisco and undergo a complete overhauling. The Restorer is a large and handsome vessel fitted with all the most modern equipment for the location and repair of the breaks and defects in submarine cables. In her cable tanks is capacity for four coils of cable of 500 miles each; but the Restorer's chief work consists of grappling for damaged cables and putting them in good condition.

SHIPPING PROSPECTS ARE GOOD.

John White, ship broker, 23a, Great St. Helens, London, E. C., thus reviews shipping during the year just closed:

Happily, the past year has closed with all countries at peace. For any extension of commerce a condition of peace will produce, shipowners have certainly fully provided in the amount of new tonnage built during the past year, which has been about 1,700,000 tons of merchant steamers, very closely approaching the highest previous record, although the qualification must be made that gross tonnage now, in many cases, includes an increase through deck erections, which are now added. Employment was more remunerative when the previous large production took place than it has been for the past four years, and the tonnage now in course of construction is probably greater than at any former period. Our ship builders and engineers are, therefore, fully employed, most builders having work to keep them occupied for the whole of this year, and many engineers being equally engaged well into next year. As in the previous year, the incentive to owners has evidently been to contract whilst prices were low, more than from any inducement of the freight market. The past year opened with a very widespread feeling amongst owners that prices for new tonnage were at their lowest, and as freights were low and no indication of an early advance, it was desirable to contract with as distant delivery as possible, consequently, within the first six weeks of the year, a large amount of work was placed, the orders to the Clyde builders alone, in this short period, being for about 200,000 tons gross of steamers, mostly cargo boats of 6,000 to 8,000 tons deadweight each. After this, comparatively few contracts were placed until the beginning of September, when, after the conclusion of the war between Russia and Japan, price of material began to advance, which induced many owners to contract freely, indeed, orders may now be divided into "wholesale" and "retail," as it is becoming common for what may be considered private owners to order four, six, or ten steamers at a time. One private firm, of successful experience, have, during the year, contracted for twenty steamers of a carrying capacity of 140,000 tons deadweight. There were building at the end of September last (according to the returns of Lloyds Register of Shipping), 1,319,718 tons of merchant steamers, and this amount will doubtless be considerably increased in the returns, when published, for the end of December. It is not necessary now, in considering the production of tonnage, to take into account sailing ships, as the building of such has practically ceased. There have been added to the British Register, including Colonial, during the past year about 1,300,000 tons of steamers and 60,000 tons sailing ships. There have been removed from the British Register during the same period, including losses and vessels sold to foreigners, about 710,000 tons steamers and 210,000 tons sailing ships, of which the larger proportion are sales to foreigners. Of these sales, about 47,000 tons were old steamers for breaking up abroad, and also include the steamers captured and sunk during the late war, which, after deducting the vessels released, represent about 110,000 tons.

The past year's production has included the Hamburg-American Line steamer Kaiserin Augusta Victoria, of 26,000 tons gross register; the same company's steamer Amerika, built at Belfast, of 23,000 tons; the Cunard Company's turbine steamer Carmania, of 20,000 tons, and many steamers of over 10,000 tons. A striking evidence of the expansion of the mercantile marine of late years is shown in the fact that there are now afloat about 100 steamers of from 10,000 tons to 26,000 tons gross register, of which about one-half are British.

At the commencement of last year steel plates were £5 15s. per ton, which was an advance upon the highest figure of the previous eighteen months; this price continued with slight fluctuation until September, when, after the close of the Russo-Japanese war, the large demand for steel for various requirements as well as for ship building advanced the price to £6 and before the end of October it was up to £7, which is practically the current price, although makers are reported to have obtained more and to be unwilling to contract further on account of the large quantity sold. This rise in material had, no doubt, its first cause in the increased cost of raw material from the demands of our own manufacturers and American who have been large customers for such, but another cause has probably been the control manufacturers have obtained over the market by the arrangement they made for Scotch manufacturers not to sell to the north of England and the latter not to sell to Scotland. The advance in the cost of material and the large amount of work contracted for caused ship builders to advance their prices fully 10 per cent by the end of October above what they accepted two months previously. This advance stopped further orders, and as prices must be commensurate with the increased cost of production, contracts will probably now be restricted to those of owners having special employment for the vessels ordered.

The strike of pattern-makers on the Clyde of six months duration, causing great delay to engine-builders in executing their orders, was the principal disturbance of labor affecting ship building during the year, and is no doubt the reason of engineers, with arrears to complete in addition to new orders, having work to keep them so much longer employed than ship building. Strikes have been prevalent amongst ship laborers in many different parts—River Plate and Brazils, delaying loading and even preventing steamers coaling there—coal laborers in Germany, Belgium and Genoa—grain laborers in Hamburg—and the terrible anarchy in Russia stopping business in the Baltic and southern Russia and destroying grain warehouses in Odessa and oil fields in Baku.

The principal customers for second-hand steamers have been the Japanese as purchasers, as well as in their captures during the war; these captures comprised 56 steamers, of which 11 were released. Several steamers have been sold to Spanish owners, who have been induced to buy further tonnage by the improved Spanish ore freights, through the rise in the price of raw material. Prices of second-hand tonnage have only improved slightly, and not in proportion to new tonnage.

A large number of old steamers, representing about 60,000 tons gross, in addition to numerous obsolete war vessels, have been sold for breaking up in this country.

Working expenses of steamers have not varied much during the year, Welsh coal is 9d. per ton less, but Newcastle, owing to an advance during the past three weeks, on account of demand from the Baltic ports, is 1s. per ton higher than the commencement of the year. Insurance rates are slightly in favor of owners. The most important alteration in expenses will be with steamers trading in or with the far east, prices of coal in Japan for the current year being about 50 per cent higher.

Turbine machinery has been successfully tested during the past year in long voyage service, and appears to have confirmed the favorable results previously obtained on short services, of economy, speed and increased stability.

The construction of steamers of the turret deck type has largely increased although still built only by Messrs. Doxford, of Sunderland, who have the largest output of tonnage of any builders for the past year.

Combination of interests, which has so largely developed

in several ship building businesses of late years, is repeated in the reported interchange of capital between the Fairfield Shipbuilding Company, Limited, and Messrs. Cammell, Laird & Co., Limited. Another important change is the removal, in the near future, of Messrs. Yarrow & Co.'s ship building and engineering works from the Thames to some outport, through the high cost of labor by trades union tactics, thus producing in London more unemployed, as in past years similar procedure drove away the large ship building trade of the Thames, which employed the class now in distress.

Our American friends appear to be still agitating for some artificial support to their shipping, and have under consideration a subsidy bill, providing benefits for everybody but the honest broker, but it seems scarcely probable that American investors will put further capital into shipping, after the unfortunate experience shown by the last report of the American Steamship Combine. The French are considering a new maritime bounty bill, the last law, passed in 1902 for ten years, which created a certain grant, having been exhausted in two years. The French Compagnie Generale Transatlantique are largely extending their operations and showing great enterprise in remodeling their fleet.

Much dissatisfaction exists among ship owners at the rates charged by the Suez Canal Company and the arbitrary rules in measurement of steamers. It is an international question that deserves attention, whether such a highway, having repaid its cost with liberal interest, should continue to be a joint stock 25 per cent profit-earning enterprise, or follow the rule with all highways and become free of toll, subject to provision for expenses of up-keep. The canal was closed for ten days in September, in consequence of the sinking of the steamer Chatham, loaded with explosives, which had to be destroyed, causing much loss to ship owners by detention of their steamers.

Competition amongst regular lines appears to increase. The lines running to America have, notwithstanding the bad experience of the previous year, had further disagreements. The British lines to India have been opposed by a German company, causing rates to be reduced to nominal figures. The two largest German companies engaged in many different trades have been at variance, evidently encroaching on one another's preserves, but it is reported have wisely settled their differences.

The outward trade of the lines to Brazils, River Plate, India, and the far east, has been very large, but to South Africa and Australia has not provided sufficient cargo for the large tonnage engaged in these trades; indeed, it appears that in these and the frozen meat trades the tonnage considerably exceeds the requirements of shippers. A new trade has arisen in the opening of the Russian coasting trade to foreign tonnage, this having been formerly restricted to Russian ships. Several cargoes have been shipped in British and other steamers, southern Russia to Baltic. It may be temporary, but it is to be hoped Russia will realize the advantage of such free trade, and that other countries, America and France, will do likewise, following the example of Great Britain, which has always left her coasting trade open to the ships of all countries.

Whatever opinions may predominate on the fiscal question, it is to be hoped that the new Parliament will remedy the present unreasonable law of taxing our own exports by the duty on coal, which is neither free trade nor protection, but a restriction of trade, which has been proved by the tax of one shilling per ton losing several contracts to our collieries, and consequent employment to steamers.

The most important business in chartering was the

large number of steamers chartered for the conveyance of coal for the use of the Russian fleet, when in the east, which must have proved very profitable business, with the large amount of demurrage earned by detention of steamers attending the fleet. This business was all undertaken by foreign steamers. An exceptionally large number of our steamers have been placed on time charter for regular British and foreign lines, as well as for ordinary voyages from this country, the Continent and Australia, States and West Indies.

A retrospect of the past year and the prospect for the future provide a difficult problem for reflection. The Board of Trade returns of exports and imports, and the reports from all manufacturing districts, give positive evidence of a substantial improvement in trade. There must necessarily be a large business to be done in replacement of the wastage arising from the long Russo-Japanese war, which is estimated to have cost about 400 millions sterling, and whether this trade is of goods manufactured in Great Britain or other countries, the transit must largely be made in British ships, which comprise half the tonnage of the world. The prospects are good of large shipments of cereals from the United States, which has been a dormant trade for the past four years, and large crops are expected in India and River Plate. Large transit is taking place of materials of various descriptions, which business is created by cheap ocean carriage and the present large carriers, and by merchants being content to deal in large quantities at small profit, instead of, as formerly, small quantities at large profit. All these factors conduce to the long looked for improvement in the shipping trade after the long depression that commenced in 1901, and the problem is whether, with the previous over-supply of tonnage, the improved prospects are annihilated by the amount of new tonnage now being built.

It is satisfactory to note that during the late bad times there have not been the extensive failures of ship builders and ship owners that former periods of depression have witnessed. There has not also been laid up idle near the amount of tonnage even that occurred so far back as 1884. This is certainly proof, as freights have been so low, that the increased size enables steamers to be worked at rates at which smaller boats could not cover their expenses.

As an illustration of how freight rates affect the selling price of an article: A soap factory in Cincinnati recently shipped two carloads of soap to a wholesale house in New York. One hundred boxes of this soap were sold to a jobbing house in Pittsburg. The Pittsburg house sold a portion of it to a jobber in Clarksburg, W. Va. These people, in turn, shipped some of it back to a retail dealer in Wheeling, through which town it had already passed to reach Pittsburg, and more of it to a retail dealer in a small town three miles from a railroad near Fairmount, W. Va. And when the retailer got it, in each case he sold the soap for five cents a cake, which is the price at which it retails in Cincinnati, the point where it is manufactured. Ultimately, some of this soap traveled 1,400 miles and was handled in freight houses and in wagons about eight times before it finally reached the consumer.

Lieut. W. J. Wilson, president of the Chicago Nautical School, Masonic Temple, Chicago, Ill., reports that the school has enrolled more pupils this year than any year since the school started. Mr. John McMillan of the steamer Vermillion has been engaged as assistant in the navigation branch of the work and Mr. Frank T. Clark of the steamer Wm. E. Corey in the engineering branch.

STEAMBOATING ON THE MISSISSIPPI

The most comprehensive statement of the possibilities and probabilities of navigation upon the central waterways which I have heard from a river man was given me by Capt. Robert E. Lee of Memphis, head of the most active steamboat company now on the Mississippi, says a letter by John L. Matthews from Vicksburg, Miss., to the *Boston Transcript*. While still maintaining his own line with old style methods, operating steamboats of the type familiar to all readers of Mark Twain, Capt. Lee recognizes their inadequacy and absurdity as competitors in modern commerce, and has worked out a scheme in keeping with the magnitude of the waterway project.

"We are all bound up together in this thing," he said. "the Gulf, New Orleans, the river, the west and the whole country about the great lakes. If there is never another foot of water in the Mississippi, and if there is never another steamboat built for it, New Orleans is going to become the great port of entry for the head of the lakes and the west, as it already is becoming the exporting port for them. The river grade railways which now operate in the valley, handle freight more cheaply than the eastern lines possibly can. If the river men do not touch it, the trade is bound to develop anyway along that direction. But the river is here and for handling this business it can be made the cheapest carrier in the world. To accomplish anything—granted, of course, that we are assured a definite draught of nine or ten feet at all seasons—we must first make a division into freight and passenger service as sharply as the railroads do. The freight handling business must be taken up by large companies with ample capital, and done systematically and with the aid of every modern device. Freight has got to be carried in steel, compartment-hulled barges, in which it can be insured at nominal cost against both fire and marine risk. These barges will have to be handled as the Ohio river coal barges are now—by powerful steamboats which are required to carry nothing but their own machinery and crews. On nine feet of water, barges carrying 1,000 tons can be handled with ease. Such barges can be towed not only on the Mississippi and the Ohio, but on the great lakes, and when the Erie canal is deepened, to New York city.

"The company which handles that sort of business will have no time and no need to pay attention to the little landings along the stream. It will have its gathering centers for cargoes at the principal river and lake ports, at Chicago, at Milwaukee, at Cleveland, at St. Louis, at Duluth, at Memphis, at New Orleans, at Vicksburg, at Pittsburg, and wherever else trade demands. At those ports cargo will be gathered into barge loads. Many concerns, such as the big harvester companies, will be able, in making foreign or even domestic shipments, to load a barge or several barges at a time. These barges will be towed around the lakes in strings as freight barges are today. They will be taken through the locks to the Illinois river the same way, and there will be made up into rafts of from five to thirty, and sent down stream ahead of a powerful stern-wheeled towboat. Export freight will be delivered by them alongside of the steamship in New Orleans or wherever desired.

"Smaller lots of cargo will be gathered by lighters or teams to the freight depots as they are for railway trains. The local business will be handled by packets, probably which will connect with the main barge lines at the river and lake cities. Barges will be dropped from and picked up by passing tows at these collecting and distributing centers.

"Such an enterprise will require more capital than has ever been put into a river line of steamers—but nothing

compared to the capital required by a railway. Nothing could compete with it in cheapness of carrying. I feel that it is bound to come. The whole cost of river improvement will be but a bagatelle compared to the cost of a railway line capable of handling the same traffic. About the Gulf of Mexico, the north coast of South America, in Cuba, there is developing an enormous trade in manufactured goods. Those goods the manufacturing centers about the lakes and rivers can supply cheaply. The raw materials are all along the same waterways. There is endless fuel there. It is impossible to see the end of the development that is in prospect. The thing that will make the steamboat end of it possible, of course, is the building up of an import trade at New Orleans, which will give return cargoes.

"In regard to the passenger trade"—Captain Lee turned to a copy of one of the Cook's tours circulars and indicated on it a picture of one of their Nile steamers—"we are going in that happy day to substitute something of that sort for the 'eat-a-ways'."

"Eat-aways?" I inquired. "What are they?"

"They are the present generation of passengers on the Mississippi. It is 440 miles from Memphis to St. Louis, and requires three or four days. We carry passengers for \$7, meals and berth included. We make nothing on them. Their money just about pays their board. We call them 'eat-a-ways' advisedly. Wooden steamers, irregular schedules, sandbars, fires, old-style, backwoods methods do not appeal to good tourist trade. We have carried 500,000 passengers in the last five years, with never an accident to one of them, but we have made nothing by it. I hate to think how much they have eaten—and sometimes at as low a rate as \$7 for the round trip, 900 miles and a week.

"Say, good-bye to the 'eat-a-way.' When deep water is assured us we will hunt the paying passenger. Something like this Cook boat here—steel hull, fireproof works, fine cabins, simple but in the finest style, hot and cold water in the rooms, bathrooms attached to the staterooms, the best of the season on the table, modern triple-expansion engines, total absence of freight, all those things will be features of the new boats we will show. They will go flying up and down the Mississippi, taking tourists on the most beautiful trip in the world, and they will charge and earn full fare for transportation and the best hotel prices for accommodation."

"If you know so well what will pay," I ventured, "why not try something of the sort now?"

"Because of the idiotic uncertainty of the conditions the government imposes upon us. The engineers struggle along the best they can, but they never get what they need from Congress. As a result the channel is always lacking somewhere, a sixth, a fourth, or even half the year our boats may have to be tied up for lack of water. We cannot afford to put money into an expensive boat and have it lying idle on our hands. We are the most wasteful, the most extravagant people in the world, we boatmen, but it is because the government, using wasteful and extravagant methods on the stream, forces the same on us. I could save perhaps 40 per cent of the cost of fuel for my engines by putting in triple-expansion affairs. But I would have to build a boat to match them and I cannot afford to do it until water is assured me."

Up in St. Louis very few men appear to have thought so far ahead toward the result of the opening of a deeper channel. On only one thing did I find them agreed—that nothing ever would, ever could, or ever ought to supersede the stern-wheel and the side-wheel. I went to president W. K. Kavanaugh, of the Wiggins Ferry Company, with the question: "When the time comes will not the old mill-wheel give way to something better?"

"Mill-wheel!" His indignation was instantaneous. "The stern-wheel is the best possible device for river propulsion. Look at the Sprague. (This is the largest towboat in the world, and handles coal tows from Pittsburgh to New Orleans.) There is not a boat in the world can do on the same draught what she does—handle 45,000 tons on nine feet of water and take it 1,500 or 2,000 miles without an accident."

"But look at the power she wastes, picking up the Mississippi on the wheel so she looks from behind like a waterfall."

"You can't help a loss somewhere," said Mr. Kavanaugh. "Don't start any one meddling with the stern-wheel. It is perfect. What we need is common sense in the construction of hulls and engines. If we can have deep water here we will put our money into something worth while in that line—steel barges and compound-engined towboats. I built a steam towboat a few years ago with a steel hull—the James Y. Lockwood, and it cost less than any other boat on the river per horsepower. It was a step in the right direction."

"Capt. McDougall came down here from the lakes about that time and thought he would revolutionize river traffic by changing the 'mill-wheel,' as you call it. He built a string of steel barges that were all right, but he put them in tow of a wonderful screw propeller steamer. The boat was built with no draught forward and 8 feet aft. When it struck a bar it was to shift its water ballast and go through on four feet even keel. It sounded well, but McDougall forgot that there are snags and logs in the Mississippi at all times in spite of the best efforts of the snag-boat. His propeller found it out for itself. Where a big 'mill-wheel' would have run over them without injury, the propeller wound them up and bent itself out of shape on them. His barges were an immense success that first trip—cheap freights, low insurance and full cargoes—but when he got as far as Grand Tower coming back he wired for help, as the propeller would not turn around. I sent the James Y. Lockwood down after him and the old 'mill-wheel' brought the new-fangled contraption and its tow back to port without trouble."

Mr. Kavanaugh, however, is enthusiastic over the possibility of good towing with good engines—in which he met with a prompt contradiction from Capt. John E. Messengale, who operates the line of Tennessee river packets from St. Louis to Florence, Ala., and also carries huge crowds of "cat-a-ways" at a cent a mile, board thrown in.

"There is nothing in it," he said comprehensively. "The old engine we have is the most compact, the lightest and the simplest. If we had more complicated machinery our engineers would not understand it. And we would have machine shops every few miles for repairs. We built a steamer—the Clyde—a few years ago, and put in these water tube boilers they use on the ocean, and abandoned the 'doctor' in favor of an injector. Well, sir, though we had the best engineer on the line we could not do a thing with them, and after a few trips we threw the injector and the water tube boiler on the scrap heap and put in old-fashioned, ten-flue boilers and the 'doctor' to feed them."

"It isn't insurance, it isn't poor machinery, it isn't the stage of water that hurts us—it's the cost of labor. Why, we can operate just as cheaply now as we did twenty years ago—and we made lots of money then. But the labor costs us three times as much. We have all the water our boats need ten months in the year, but the labor is awful, and organized so they strike repeatedly."

"But, Capt. Messengale," I suggested, "do you expect to compete today with modern railways, operated as close

to the cent as they are, with steamboat methods that paid twenty years ago? Can you do it?"

"Certainly, we can, for the class of trade our boats can handle. Understand me, I am not a pessimist, but an optimist on river matters. I am one of the committee which has been working for this channel to Chicago. And it is going to be a grand, good thing. But don't get the idea from that that we have any foolish notion of throwing away what experience has taught us is the best. We have not."

So there is the exactly opposite opinion to that of Capt. Lee. From Capt. Isaac N. Mason, who operated the famous Anchor Line, between St. Louis and New Orleans, I heard much to substantiate the opinion of the Memphidian. In fact, without having worked out a scheme so comprehensively, Capt. Mason was well on the way toward it.

"Systematic towing, systematic gathering of freight, regular schedules, modern boats and engines," he emphasized all the points.

And there, I think the development is bound to come. I am close to the enthusiasm for it now, and it may be a bit out of perspective—but I do not think so. It seems to me that there is no greater opportunity for good government work than here; that the good the country will gain from it is greater than that from Panama. Business methods have taken hold of everything else in modern life, and if the government provides the certainty of a channel upon which alone can a safe business be built up, I believe great carrier companies such as Capt. Lee outlines will be quickly organized to make the fullest use of this grand system of waterways.

LAUNCH OF TRANSFER TUGS.

Wm. Cramp & Sons Ship & Engine Building Co. recently launched two transfer tugs for the New York, New Haven & Hartford Railroad of the following dimensions: length over all, 125 ft.; length between perpendiculars, 111 ft. 6 in.; beam, 26 ft.; depth, 14 ft. 6 in. The machinery consists of one compound engine with cylinders 20 and



LAUNCH OF A RAILWAY TUG.

44 in. in diameter by 30 in. stroke, and designed for 900 H. P. at 130 revolutions, which will give a speed of about 30 knots an hour. The steamer is supplied with a single Scotch boiler 15 ft. 3 in. diameter and allowed 150 lb. pressure.

The lighthouse tender for Delaware river will be built by the Harlan & Hollingsworth Co., Wilmington, Del. She will be named Sunflower and will be 173½ ft. long, 31 ft. beam and 15½ ft. depth of hold.

UNCLE SAM, SHIP OWNER.

BY WALTER J. BALLARD.

In his annual report for 1905, the commissioner of navigation, Mr. Eugene T. Chamberlain, tells us that our merchant marine of all kinds of documented shipping, on June 30, 1905, consisted of 24,681 vessels, of 6,456,543 gross tons. For the year, this is a net increase of 123 vessels, and 165,008 gross tons.

The geographical distribution on June 30, was:

	Vessels	Gross Tons
Atlantic and Gulf Coasts.....	17,357	3,396,542
Northern Lakes	3,011	2,062,147
Pacific Coast	2,674	793,088
Western Rivers	1,526	174,319
Hawaiian Islands	56	28,622
Porto Rico	57	1,915

Total 24,681 6,456,543

The construction during the year was:

	Vessels	Gross Tons
Atlantic and Gulf Coasts.....	661	210,601
Northern Lakes	101	93,123
Pacific Coast	162	20,115
Western Rivers	178	6,477

Total 1,102 330,316

As the year's net increase in our merchant marine was only 123 vessels, of 165,008 gross tons, while 1,102 vessels, of 330,316 gross tons, were constructed, it follows that 979 vessels, big and little, nearly all the latter, of 165,308 gross tons, went out of commission from various causes, during the year.

The new construction of 1905 included 55 vessels of 1,000 gross tons or upward, aggregating 194,307 gross tons, or about 60 per cent of the total construction. The largest of these was the leviathan Dakota, of 20,714 gross tons. The other 54 vessels ranged from 1,070 gross tons to 6,684 gross tons. Forty-one steel steamers of 158,631 gross tons were constructed for the great lakes trade. Seven steel steamers, of 41,030 gross tons, were built for the ocean trade; that is encouraging in view of our lamentable shortage in ocean-going vessels. These figures show that nearly four times as much new tonnage was built for our great lakes trade as for our foreign trade.

"It is especially noteworthy," says the commissioner, "in view of the decline in this country of ship building in the past few years, that four large steamers for trade with Cuba and Mexico, have recently been ordered in American yards. These steamers, however, it should be stated, are to replace steamers which have been purchased by the government for the operation of its merchant line from New York to Colon, Panama. Two large steamers are also building on the Pacific coast for the American Hawaiian Steamship Company."

When the present report was closed, June 30, 1905, the steel vessels under construction in private yards, for the merchant and government services, as compared with June 30, 1904, was as follows:

	Merchant		Government		Total	
	No.	Tons	No.	Tons	No.	Tons
1904	57	94,988	38	331,425	95	427,121
1905	76	190,903	39	308,702	125	460,361

The government also had, June 30, four vessels of 32,185 tons (displacement) building for the navy at government navy yards, under an appropriation of \$6,202,000. Says the commissioner: "The labor and capital employed in construction of the larger types of ocean steam tonnage thus continues to be almost wholly dependent on appropriations by congress, and bids fair to continue so throughout the year."

Our ship building for foreign trade in the past four fiscal years was:

	Vessels	Gross Tons
1902	21	108,775
1903	18	101,471
1904	7	71,859
1905	7	41,030
1906, building	7	36,150

That is not by any means a record to be proud of. A reduction of two-thirds in four years, while our foreign commerce has grown \$2,284,000,000 to \$2,800,000,000 (1905 calendar year), an increase of \$516,000,000, or nearly one-fourth, in the same period.

Decreasing two-thirds in new carrying facilities and increasing one-fourth in goods to be carried is not the kind of business proposition we usually deal in.

Our enrolled and licensed merchant marine is:

	Number	Gross Tons
Steam, Iron and Steel.....	1,359	1,987,395
Steam, Wood	7,158	1,152,919
Sail, Wood and Iron and Steel.....	14,792	2,361,716
(Including canal boats and barges.)		
Total	23,309	5,502,030

Comparing that with our chief competitors in the world's commerce, we have:

	Number	Gross Tons
British Empire	11,365	17,009,720
Germany	4,225	3,517,673

All of the merchant marine of the British Empire, except 2,336 vessels of 1,600,182 gross tons, consists of steamers, practically all of Great Britain's tonnage, and much the greater part of that of the British colonies, is employed on the sea. It is the same with Germany. By far the greater part of her marine tonnage is used in foreign trade, while the foreign trade part of our large tonnage is only about 900,000 tons.

It is interesting to note the nationalities of 120,635 sailors shipped and reshipped (including repeated voyages) who worked for Uncle Sam, ship owner, in 1905 fiscal year.

Americans (born)	37,098
Americans (naturalized)	22,571
British	13,790
Spaniards	11,738
Norwegians	6,019
Italians	4,593
Swedes	4,223
Germans	4,178
Portuguese	3,827
Russians	2,810
Danes	1,501
Austrians	1,145
French	562
Japanese	537
Filipinos	57
All others	5,606

The total number working on American ships in 1905 was about 8,000 more than in 1904. That the Spaniards rank fourth is somewhat of a surprise. It is gratifying to find that one-half of Uncle Sam's merchant sailors are Americans by birth or adoption. Those classed as "others" are principally natives of Central and South American States, Mexicans, Cubans, and natives of the various West Indian Islands.

In passing, and in view of the natural link between Uncle Sam's merchant marine and his navy, it is worth noting that *Lloyds Register* for January, 1905, says: "The warship tonnage launched by the United States in 1904, amounting to about 171,000 tons displacement was, with but one exception, the highest total ever launched for any country during one year; the exception being 1901 when Great Britain launched 210,000 tons of British war vessels."

Uncle Sam, both as ship owner and naval commander,

is all right, except that he does not own enough ocean-going merchant vessels.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

The delegates of the lake lodges of the Marine Engineers' Beneficial Association held a general meeting with the Buffalo lodge during the last half of last week to discuss the questions that they desire to present at the national convention in session in Washington this week, beginning on Tuesday. The Buffalo meeting was called to order by E. J. Jenkins of Cleveland, who for some years has been the lake business manager of the association, an officer who is always selected by the lake lodges independently of the entire association. Mr. Jenkins announced that he was about to go into other business and must therefore decline a re-election, so Joseph R. Blanchett of Buffalo, who was engineer of the Nyanza last season, was chosen as his successor.

The following lodges were represented.

Buffalo, No. 1—Irwin Marshall, John Davidson, W. D. Blaicher.

Cleveland, No. 2—E. J. Jenkins, John Kirby, Arthur Hyde.

Detroit, No. 3—A. L. Jones, Edward Blanchard, William Taylor.

Chicago, No. 4—Stewart Moore, John McCracken.

Milwaukee, No. 9—William Bridges.

Bay City, No. 27—N. P. Slater.

Toledo, No. 37—John Bender.

Erie, No. 39—James Hunter.

Port Huron, No. 43—George Bowen, James Oag.

Manistee, No. 44—Christopher Dahl.

Sandusky, No. 48—John Hegemer.

Muskegon, No. 51—A. J. Rice.

Marine City, No. 53—A. A. Manion.

Duluth, No. 78—Louis Griggs.

Ogdensburg, No. 89—Edward Lord.

Ashtabula, No. 91—Theodore Meyers.

Saginaw, No. 93—John Henry.

Represented by proxy were Clayton, No. 46; Oswego, No. 72; Alexandria Bay, No. 75; and South Haven, No. 102.

Among the measures discussed in the meetings was naturally that of wages and though the delegates were careful not to give out any details it is stated that no demands will be made on vessel owners that are different from the wages of last season, except in a few cases governed by entirely special and local conditions. This matter, as well as any other to be brought up before the national body, has been well thrashed over and ought to be received without much question.

It is not expected that there will be much difficulty with the lake carriers, though the engineers say that they cannot afford to prejudice their case now by giving out their plans to the press. What they have to say must be kept to themselves till it is necessary to bring it up when getting ready for next season. There is no intimation that there is much to be settled and it is intimated that no particular difficulty is looked for.

One of the features of the Buffalo meeting was the informal banquet and general rendezvous of members on Friday night at the Cafe Almendinger, where the utmost good fellowship was maintained without the aid of any very grave formalities. This dinner was a relaxation from the work of the meeting proper that was much enjoyed. From all appearance the sessions have been well kept up. Hard work was plainly manifest on the faces of the most active members of the delegate body.

The association is in fine financial condition, as the

reports show and it takes care of its members well, though the original benefit clause had to be dropped or modified when the ocean service was included, on account of the high death rate in the south. It is said that there are not more than half a dozen active lake engineers who are not in the association. The active membership on the lakes is perhaps 2,300 and there are outside of those who still sail a great number who are now occupied on land, often running stationary engines. In order to remain eligible they are required to keep up their qualification as lake engineers.

This is the 31st convention of the national body. The Buffalo lodge is No. 1, which is another way of saying that it was first formed and joined with a few other equally enterprising in forming the general association.

THE STANTON'S EARLY TRIP.

While it cannot be said that the steamer John Stanton really opened navigation for the season of 1906 on the great lakes, the fact remains that she made the trip from Buffalo to Cleveland on Jan. 22 in tow of the tugs Alva B. and Fabian. Capt. Charles L. Hutchinson, managing owner of the steamer, made the trip on the steamer. The tugs left Buffalo a little before eight o'clock on Sunday morning, having waited for some hours for a wind, which had been freshening, to die down. The trip of 187 miles was made in a little less than thirty hours. Better time would have been made had the tugs a good supply of fuel on board, but the Alva B had to get fuel from the steamer enroute. The Stanton was taken to the Ellsworth dock at Cleveland and loaded with coal on Monday morning.

Vessels have been shifted from one Ohio port to another during the winter to take on cargoes, but never before has a boat been brought from Buffalo to Cleveland in January to load. The practice of loading steamers with coal in port has become quite general. Hard coal shippers at Buffalo have loaded vessels with 100,000 tons and it is predicted that a half million tons of coal will be afloat at Lake Erie ports before the opening of navigation. The work of loading has been greatly facilitated by the mild weather and no difficulty has been experienced in moving the vessels about the harbors.

The government records show that 236,000 tons less of bituminous coal were received at the head of Lake Superior last season than in 1904. This decrease in connection with the great expansion of iron mining, railway business and general traffic, accounts for the depleted condition of stocks at the head of the lakes. The docks are almost entirely out of soft coal for other than railway purposes and for mining interests. Coal consumers in the northwest are therefore praying for an early opening of navigation.

TWO STEAMERS PURCHASED.

The Oceanic Steamship Co. steamer Zealandia has just been sold to C. L. Dimond, the eastern ship owner, who has also recently purchased the excursion steamer Olympia of Portland, Ore. It is Dimond's intention to have the steamer Zealandia tow the Olympia around to New York via the Straits of Magellan. The Zealandia will then be placed in the Atlantic coast trade. The Zealandia is the pioneer steamship of the Oceanic Steamship Co.'s fleet. She was built in 1875 at Glasgow, Scotland, and with the Australia plied between San Francisco and Australian ports. When the Mari-
posa and Alameda were added to the fleet, the Zealandia was placed on the San Francisco-Honolulu run. For years the vessel was out of commission, but recently was placed in the Nome trade.



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The National Rivers and Harbors Congress which convened in Washington last week has gone at its subject broadly. During its convention it did not advocate a single sectional appropriation. It had no local improvements to advance but worked for the general improvement of the waterways system of the United States. The purpose of the congress is evidently to work in conjunction with the rivers and harbors committee of the house of representatives and assist it in every possible way. This will be done by molding public opinion in various parts of the country in favor of generous and broad-minded treatment of our waterways, on the ground that the prosperity of the whole people depends upon their continued development. Probably the purpose is pretty well expressed in the following resolution, which was adopted by the congress:

Resolved, that this congress recognizing, appreciating and commending the invaluable work of the rivers and harbors committee of the house of representatives and of the committee on commerce of the senate, aided by the engineer corps of the army, deeply regrets the limitations resulting in appropriations so small as to seriously embarrass and defeat the proper development of their labors.

Resolved, That the national government having assumed the improvement and control of rivers, harbors and waterways of the country, has unequivocally bound itself to discharge these obligations promptly, by sound business methods; and instead of appropriating for the purpose, at uncertain intervals of two or three years, should put river and harbor bills on a par with other great appropriation bills, by annual appropriations.

Resolved, That in view of the large number of projects for the improvement of our harbors, rivers, waterways and canals that have been approved by the engineers and the committees, requiring the expenditure of large sums of money, we not only recommend but urge an annual appropriation of at least \$50,000,000, confined to such works of improvement, and that, until the accumulation has been cleared, it is due that congress take whatever steps may be required to provide the sums necessary to promptly, effectively, economically, complete accumulated worthy national projects, approved, adopted and recommended by the constituted authorities now delayed only by lack of available funds.

Resolved, That the executive committee appointed be and is hereby directed to use all proper means to further the purposes of these resolutions, actively and in such manner as will assure the completion of these works of national development.

One of the most urgent reasons for the rehabilitation of the merchant marine of the United States has just been given by Secretary Taft of the war department to congress. In this report Secretary Taft says that the force which the United States military establishment maintains cannot be exerted over seas in case of a foreign war or for the defense of insular possessions unless there is an immediate and great increase in the number of American steamships available for transport services.

"The quick first blow, so very and increasingly important," says Secretary Taft, "cannot be struck at all, nor can an expedition of any greater size be embarked without delay, except by the use of foreign vessels." It is well known that when war is declared the neutrality of other nations is insisted upon. In such a time ships that belong to other nations are of no earthly use since they cannot be obtained without violation of neutrality rights and without jeopardizing the peace of a neutral country. This is a pretty predicament for a country so vast as the United States and with such great responsibilities. As a matter of national defense an adequate merchant marine should be created at any cost. It is useless to continue to build battleships when the support of a merchant marine is lacking. A warship is only an assembly of guns and armor. Its life is in its personnel. It cannot be adequately manned unless the source from which its personnel is drawn is constantly renewing itself. This real source must always be the merchant marine. Those battleships are most formidable which are manned with men of a sea-faring habit. The sea-faring habit is born in a nation through its merchant marine. If any conditions obtain which make it impossible for a merchant marine to flourish under the American flag those conditions should either be removed or compensated for. Everyone knows why there is no merchant marine in the American over-sea trade. It is because it costs more to build a ship in the United States than it does abroad, and more to operate it after it is built. The American ship cannot meet the unequal conditions which have been imposed upon it in the American policy of protection. Shipping is the only American industry which has been exempted from the beneficence of the protective policy. If the protective policy cannot be extended to the American ship it should in

common justice be withdrawn from every other American industry. The ship builders of the United States, engaged in legitimate and honorable employment, are entitled to the same treatment that is accorded to every other American manufacturer.

It has again and again been stated that American manufacturers and exporters do not pay sufficient attention to packing goods for shipment. Goods destined for foreign countries require better and more careful packing than for domestic shipment. The department of commerce and labor has now brought this subject most forcefully to the attention of American manufacturers in its daily consular and trade reports. Special Agent Crist writing from Tientsin, China, describes at length the manner in which goods are received at their destination and accompanies his description with actual photographs of the goods when unpacked. It would be well if every manufacturer and exporter in the United States would write to the department of commerce and labor for a copy of this report. The report ought to be worth hundreds of thousands of dollars, probably millions, to the manufacturers of the United States.

The trip of the steamer John Stanton from Buffalo to Cleveland on Sunday, Jan. 22, will, if the meteorological records of the past count for anything, remain a distinct achievement in the history of lake navigation for many years to come. Buffalo as a rule, is the port which opens latest on the great lakes owing to the congestion of float ice at that port. This year it is the port that has opened earliest because a great steamer has really cleared from it.

LAUNCH OF THE CHARLES S. HEBARD.

The steel freighter Charles S. Hebard building at the Cleveland yard of the American Ship Building Co. for the Wilson Transit Co. of Cleveland was launched on Saturday morning last and was christened by Miss Marion Rees. The Hebard is 524 ft. over all, 504 ft. keel, 54 ft. beam and 30 ft. deep. Her hull is of arch construction with thirty hatches. Her engines will be triple-expansion with cylinders 23½, 38 and 63 in. diameters by 42 in. stroke, supplied with steam from two Scotch boilers, 14½ ft. diameter and 11½ ft. long, fitted with Ellis & Eaves draft. Capt. Dawley of Conneaut will command the Hebard and Mr. Fred Harmon of Cleveland will be her chief engineer. Among those who witnessed the launch were: Mr. and Mrs. W. D. Rees, Mr. and Mrs. Walter James, Miss James, H. Maynard Rees, George Garretson Jr., W. B. Castle, Mr. and Mrs. J. E. Upson, Wm. Wellman, H. M. Herriman, Sterling Hubbard, Mrs. Churchill, Mrs. Linn, Mr. and Mrs. Oliver Upson, Miss Morton, Dr. Newman Nobles, Mr. Charles Smith, Capt. Edward Morton, A. Thomson, Capt. Joseph Wood, Mr. and Mrs. Fred Harmon, Charles Beatty, James Ash, Mr. Robert Wallace and Mr. R. C. Wetmore.

LAUNCH OF THE ZIMMERMAN.

The freighter Eugene Zimmerman was successfully launched at the yard of the Toledo Ship Building Co., Toledo, on Thursday last, and was christened by Miss Ruth Sullivan,

daughter of Mr. L. S. Sullivan, of Toledo, for whom the vessel is building. Owing to pressing business Mr. Eugene Zimmerman, the well known railroad magnate after whom the steamer is named, was unable to be present. The Zimmerman is a duplicate of the steamer James P. Walsh, which was built at the same yard last year, and is, therefore, 500 ft. over all, 480 ft. keel, 52 ft. beam and 30 ft. deep. She is built on the arch system of construction with fourteen hatches. Her engines will be quadruple-expansion with cylinders 15, 23, 36 and 55 in. diameters by 40 in. stroke, supplied with steam from two Scotch boilers. 12½ ft. diameter and 11 ft. 9 in. long. Capt. F. B. Cody will sail the Zimmerman.

DETROIT RIVER TUNNEL.

The special commission of United States engineers appointed to consider the method of constructing the railway tunnel under the Detroit river at Detroit, met in that city this week. This commission consists of Col. Garret J. Lydecker, of Detroit; Lieut. Col. Daniel C. Kingman, of Cleveland; Major James G. Warren, of Cincinnati; Capt. Wm. B. Judson, of Milwaukee, and Capt. Charles Keller, of Detroit. It was determined that the tunnel which is to be built by the Michigan Central railroad, will be of the open trench method. After the railroad, through Attorney Henry Russel and Chief Engineer W. S. Kinnear, had presented its plea for an open trench method, President Livingstone, of the Lake Carriers' Association, said that his association would interpose no obstacles towards the construction of the tunnel, but on the contrary, would aid it in every way. He suggested that the government station a patrol boat at the scene of operations during the progress of the work. Mr. Henry B. Ledyard, chairman of the board of directors of the Michigan Central, said that if any hitch occurred in getting an appropriation to defray the expense of stationing the patrol boat, the Michigan Central would cheerfully pay all bills.

Construction bids will be asked for in a few days, and Chief Engineer Kinnear says that some of the contracts will be awarded within ninety days. Actual work will consume about a year. The gradient of the tunnel will be 2 per cent against west bound traffic, which is largely empty cars and 1½ per cent against east bound trains which are composed largely of loaded cars.

The formal report of the board of engineers will be prepared by Capt. Charles Keller, the junior member, and will be forwarded to Washington for approval. After the hearing President Livingstone took the members of the board of engineers to the Detroit club for lunch.

GROWTH OF AVERAGE CARGOES.

Figures of the Duluth, Missabe & Northern road, for the past ten years, show the increase in annual average cargoes loaded there to have been as follows:

Gross Tons Ore		Gross Tons Ore	
Average		Average	
Year	Cargo	Year	Cargo
1895.....	1,800	1901.....	4,450
1896.....	2,202	1902.....	4,899
1897.....	3,556	1903.....	5,668
1898.....	3,517	1904.....	5,272
1899.....	3,803	1905.....	6,101
1900.....	3,783		

The board of directors of the Maritime Association of the Port of New York is anxious to increase the membership of that body to 1,200. Its present membership is 985. At the last monthly meeting the board drew up an amendment to the by-laws of the association which has been submitted to the members to vote on providing for the waiving of the initiation fee of \$100 upon payment of \$15 until the membership should have reached 1,200.

CAPT. JOHN PRINDIVILLE.

No more lovable and distinguished character has ever been identified with lake commerce than Capt. John Prindiville, who lately died in Chicago. He was a man of many admirable parts and had lived to see the lake trade grow from very small beginnings to its present magnificent proportions. The MARINE REVIEW can do no better than to reproduce the following appreciation of Capt. Prindiville:

Not in any port on the entire chain of lakes is there to be found a name more honored and respected than that of Captain John Prindiville, whose record for upward of half a century as an intrepid sailor, an expert navigator, and as a generous whole-souled man is sans reproche.



CAPT. JOHN PRINDIVILLE.

Lake Michigan is dearer to his heart than is the first-born babe to the fond mother who presses her child to her bosom and weeps for joy over her new possession. He knows all its moods, whims and fancies, be they passionate, fierce or tender, and is only supremely happy when skimming over the surface of the broad bosom that has known his voice from the day he left Detroit on the schooner Saratoga fifty-six years ago to make his first voyage to Chicago.

"Captain John" was then a sturdy boy of eight. From his birthplace in Ireland he had accompanied his parents to the new world, going first to Buffalo, thence to Detroit, and finally to Chicago, where he arrived with his brother Redmond in the summer of 1836. Captain John comes by his love for adventure honestly. His father, Maurice Prindiville, broke away from school, where he was studying with a view to entering Trinity College, Dublin, and made a voyage to India, remaining in the far east until he was twenty-five, when he returned home, fell in love with a rosy-cheeked lass and married her. But the adventurous Maurice was dissatisfied with his surroundings and, after a few years, embarked for America with his wife and two young boys, reaching, after some wanderings, the embryo city of Chicago.

Captain John's education was given by Squire Calvin De Wolf, who taught in the public school that was housed in St. James' Episcopal Church, a frame structure at the corner of Illinois and Cass streets. From the public school the lad was sent to acquire a finishing polish to St. Mary's College,

which stood at the corner of Madison street and Wabash avenue, Bishop Quarters' residence occupying the next corner east on Michigan avenue. The Rev. Jeremiah Kinsella was president of the college and among his first scholars, in addition Captain John and Redmond Prindiville, were Lewis A. Kimberly, now rear admiral of the navy; his brother John, Frank and Ed Sherman and James A. Mulligan, the gallant Mulligan who fell at Winchester. Old Dr. Kimberly, the father of Lewis and John, arrived in Chicago in 1834, two years ahead of the Prindivilles, between whom and them a warm friendship existed.

At college Captain John was noted for his many dare-devil pranks, and only his jolly good nature and popularity saved him from serious "riggings." At one time, while engaged in the exciting frolic of follow-my-leader, in which as usual John was leader, he took his schoolmates out on the ice that was lying off shore, to reach which the lads were compelled to make a lengthy leap across open water. After disporting on the frozen surface some minutes the leader saw that the body of ice was moving rapidly eastward into the lake. Realizing that every moment's delay would only render their situation more dangerous, with a "follow me, boys," Captain John leaped overboard into the icy water, which was then breast high and through which he waded to shore with his comrades close at his heels. Up toward St. Mary's they went on a sharp trot, their course being marked by a dripping trail that oozed from their water-soaked garments.

President Kinsella met the shivering youngsters at the college gates, and singling out their leader sternly inquired of Master Prindiville the cause of so unseemly an appearance on the public streets. In response to Master Prindiville's explanation followed a sharp invitation to accompany the president upstairs to his private room instantler. Here Captian John received a serious lecture, which might have been topped off with corporal punishment if at that juncture Bishop Quarters had not appeared. The bishop had heard the story from one of the boys and secretly applauded the good sense of the lad who, having led his comrades into danger, had presence of mind enough to bring them safely out again. Owing to his good offices president Kinsella was induced to forego the application of the rod, and the boy was ushered out after listening to the combined admonitions of the bishop and the president.

After leaving St. Mary's College his passionate love for the water induced Captain John to go straight to the fo'c'sle, where, on board the schooner Constitution he rose a notch as soon as he was old enough, whence he rapidly worked his way aft to the quarter deck. At eighteen Captain John had risen to the dignity and responsibility of skipper, his first command being the schooner Liberty. His next vessel was the Noah's Ark, of which he became sailing master in 1846. Years after when entered in a regatta at Mackinac, an old sea dog who knew Captain John's sailing proclivities well remarked of the latter as he passed the judges' boat with colors flying: "Win! Why of course he'll win; he'd cross the line first if he only had a raft under him, just as he used to make port ahead of us all when he sailed the Noah's Ark that was towed by the Mayflower from Mount Arryrat."

When Captain John was sailing in the '40s, before the big steam vessels made their appearance on the lakes, he had the reputation of carrying more canvas on his spars than any other skipper afloat. He never lost a boat, but the probabilities are he spilt overboard more pine sticks than any six of his colleagues. This was owing to his ambitious desire to score a beat on rival boats engaged in the lumber trade. Professor Barrett, city electrician, was "royal boy" on the brigantine Minnesota under Captain John in 1851, when that boat was considered the fastest vessel on the lakes. Later on he was promoted, and at one time, while taking a trick at the wheel when the brig was standing in toward Saginaw with a cargo of lumber, the wind took her aback, throwing her on her beam's end, with her sail under water. Captain John, who

was on the weather side, sprang to the wheelsman and grasping him by the slack of his pantaloons yelled: "Hang on to that wheel, man, or I'll drop you overboard." As the professor was not anxious to meet Davy Jones just then, and knowing that he would die sure if he relaxed his grip, he hung on with his eyebrows until the ship paid off and the danger was averted, when Captain John let go of the slack and walked on.

On another occasion, when acting as second mate under the "Storm King," as the boys nicknamed Captain John, it occurred to Mate Barrett that the brig was carrying altogether too much canvas for the amount of wind in sight. So he went in to see the skipper, who had just turned in for a spell of sleep.

"Take in sail; why, I should say not," returned Captain John; "she's doing beautifully, sir, beautifully."

Half an hour later away flew the royal and topgallants' l. together with the main gaff-tops' l. Back to Captain John went the mate to report. "No need to take sail now, sir; canvas is blown clean out of the bolts and the topmast has gone by the board."

"Very well, send up another spar," answered the imperturbable captain, as he rolled over for another snooze.

Captain John fed his sailors well and treated them well, even if he did work them pretty hard. In the spring when navigation opened, he always had a score of mothers in his office begging him to ship Tom or Jack or Dick, boys, perhaps, with tough reputations ashore, but who were the best of sailors when away from land influences. The best navigator on the lakes, it was considered a special privilege to sail with Captain John, and his men would have gone through fire and water to serve him. Brave as a lion, he was absolutely without a fear, seeming to court danger for the excitement it lent. The Pottawattamie Indians used to call him "Min-in-gun," or "Hell-cat," because of his utter recklessness in the face of imminent peril.

It was the brigantine Minnesota, built in Chicago and commanded by a Chicago boy, Captain John Prindiville, that was the first American vessel to sail up the St. Lawrence river. The boat was chartered by the Montreal Mining Co. in 1850 to take on a cargo of copper at the Bruce mines in Georgia Bay and clear for Swansea, Wales. Owing to the stupidity of the pilot, however, the Minnesota was run on the rocks in going through Lachine canal, necessitating the unloading of her cargo for repairs. When rendered seaworthy the season was so far advanced that the underwriters refused to insure, so the vessel laid up for the winter, and in the spring Captain John took her back to the lake trade. It was Captain John again who, in 1873 loaded the Pamlico with a full cargo of corn and made the first through charter from Chicago to Liverpool.

From 1855 to 1865, Captain John and his brother Redmond owned and operated the only line of tugs on the Chicago river. During these years the Captain's record for bravery in saving lives at the risk of his own is a grand one. People living in Chicago at that time will never forget the awful storm of Nov. 17, 1857, when a dozen vessels were sacrificed. But for the heroic efforts of Captain John and his gallant crew that manned the tug McQueen the number lost would have been more than trebled. When the crew of the Harriet Ross, with frozen hands and feet, were lying off the Chicago harbor utterly unable to avert their impending doom it was Captain John who breasted the storm and brought them to shore in safety, returning later to relieve the distress of the sailors aboard the Di Vernon, then pounding on the piers two miles south of the river entrance. Off Douglass Monument the steamer Cape Horn was grounded, with the waves angrily threatening to dash her to pieces and the half-frozen crew vainly trying to escape the biting billows in the rigging. Steaming out for the third time, utterly ignoring the pleadings of his friends to think of his own safety, Captain John steered

boldly for the Di Vernon, approaching her with head on, and by stationing a man in the bows managed to pick off the shipwrecked sailors one by one until the entire crew was rescued.

It was a heroic act, and at the close of that eventful day Stephen A. Douglass, Charlie Wilson of the *Journal*, and a dozen other prominent citizens of Chicago met at the Tremont House, whither Captain John had been inveigled, and after thanking him for his gallantry, Senator Douglass picked up a purse of gold containing \$700 and handed it to a brave sailor, remarking as he did so: "Capt. Prindiville, please accept this purse as a small token of the honor and esteem in which you are held by your fellow citizens of Chicago, who, believe me, fully appreciate the gallant deeds you have performed today in the interests of humanity."

In his modest, diffident way, Captain John thanked the senator for the sentiments expressed, but positively declined to accept the money. "I cannot be paid," said the noble fellow, "for saving lives. That I account a special privilege, and one of which I am always glad to avail myself whenever the opportunity presents. There lies in a jeweler's show window around the corner," he continued, "a gold watch and chain that was offered me on an occasion similar to this a year ago. I have asked the good people to sell it and turn over the proceeds to the widows and orphans of those sailors who lost their lives during that storm. If my kind friends here will permit, I should like to see this purse of gold distributed among the families of the frozen crew of the Flying Cloud, all of whom perished in the storm of last night and today."

It was not alone by steaming out in the teeth of a gale with his tug that Captain John showed his nerve and bravery. From 1840 to 1850 many a hard pull across the angry billows in a common yawl boat has the captain made to rescue perishing sailors. When the schooner Indiana went ashore on the beach early in the '40s it was he who led a rescuing party through the surging breakers toward the ill-fated schooner, from which Capt. E. T. Dow and wife, together with all the crew, were brought here in safety. In the spring of 1843, when the ice was ten inches thick on the river, a party of seven young men that had pulled out in the lake to the schooner Maumee were precipitated into the icy waters by the capsizing of their boat, and, although they managed to clutch the keel, all stood a fair chance of being frozen to death when Captain John and Captain Shelby jumped into a small yawl boat and out through the treacherous ice drifts rowed toward the struggling mortals, all of whom were rescued from their perilous position and brought safely to shore.

To commemorate this brave act a special meeting was held in the old Baptist church that stood on La Salle street at the south end of the lot now occupied by the Chamber of Commerce Building, at which Elder Hinton, in the presence of an audience that filled every corner of the church, preached a powerful sermon eulogizing the gallantry of the rescuers and taking occasion also to graphically moralize on the mutability of life and the necessity of being ready at all times to meet the call. His text was: "And he said unto the waves, 'peace be still,' and they obeyed him."

The narrowest call Captain John ever had was in August, 1862, when the boiler of the tug Union exploded, instantly killing Capt. Baily, Capt. Boyd, then harbor master, and the fireman of the boat. Captain John had relinquished the wheel to Capt. Dailey two minutes before the boiler burst. He had stepped out of the pilot house and walked aft to hail the tug Julian Rumsey when he heard a hissing noise, saw a pile of debris shoot up in the air, and realized instantly what had taken place. Although the tug began settling at once the captain stayed aboard until the very last, intent on saving the scalded crew, and not until all were transferred to the Rumsey would he suffer himself to be picked up, the tug

Union meantime having sunk out of sight, leaving him struggling in the water.

With the exception of Uncle Hiram Wheeler, Captain John's membership in the Chicago Board of Trade probably antedates that of any other living member. He joined the organization in 1856, one year after it received its charter, paying \$5 for the privilege of becoming a member. In the thirty-six years of his affiliation with that body it is safe to say that no individual has been more highly honored among his fellows than Captain John, whose warm-hearted, generous disposition has won for him a circle of friends whose name is legion. Of a kindly, gentle nature, as are all true, manly heroes, the captain is withal as modest as a blushing maiden, and would far rather face the worst storm that ever ravaged the shipping on Lake Michigan than meet a reporter who desired to glean any facts regarding his adventurous career.

The following poetic tribute to Captain Prindiville was written in 1876, by Capt. Sam Whiting, of one of the famous Black Ball Line clippers sailing out of New York:

I have a friend, I love his name,
A truer soul God never made;
He may be quite unknown to fame,
For true hearts ever court the shade.
This friend is loved wherever known;
A sailor, he, of matchless skill,
Whose friendship I am proud to own,
And this his name, John Prindiville.

His lightest care is for himself,
He never had a petty thought;
His God is not the sordid pelf
For which men oft are sold or bought.
His comrades know him good and true;
Of him none speak a word of ill.
On this broad earth there are but few
Like my dear friend, John Prindiville.

A husband ever good and kind,
A father tender, loving, mild;
No wonder that his virtues bind
His great heart to each loving child.
When those he loves are bowed with grief,
His eyes with sorrow's tear drops fill,
While for their woes he seeks relief,
This great, big-souled John Prindiville.

A blessing on him and his wife,
In virtues they are mated well;
May God bestow on them through life,
More happiness than words can tell,
And when life's toilsome journey ends,
Calm at the bottom of the hill
May they repose, while mourning friends
Will say "God bless John Prindiville."

And so, whatever be my lot,
On land or tossed on ocean's foam,
These friends will never be forgot,
Where'er my wandering footsteps roam,
For thee, my dear old hearty friend,
Till death my life line rudely parts
And my rough voyage comes to end,
I'll hold thee in my heart of hearts.

The New York Ship Building Co., Camden, N. J., will get the contract to build the Pacific Coast Co.'s new passenger steamer to be placed on the route between Seattle and San Francisco in 1907. Of the six bids submitted the New York Ship Building Co.'s was the lowest, and moreover, this company offered to deliver the vessel more promptly than any of the other bidders, including the Union Iron Works of San Francisco, and the Moran Bros. Co. of Seattle.

Notwithstanding the steamship St. Paul has been given up as a total loss yet the little wrecking vessel Wing-and-Wing with a small crew is still engaged in getting every thing possible from the doomed craft

NATIONAL RIVERS AND HARBORS CONGRESS.

The National Rivers and Harbors Congress which met in Washington last week is likely to become a most influential body for the improvement of inland waterways. It has representatives in nearly every state in the union. This congress was organized several years ago when the river and harbor appropriations were imperiled, but it has really never had a permanent organization. This organization was formed at the recent meeting in Washington when Mr. Harvey D. Goulder of Cleveland was elected president, Col. W. H. Love of Baltimore, secretary and E. H. Sharwood of Philadelphia, treasurer. In addition to these officers it was provided that there should be a vice president nominated by the delegation from each state. This will be done later. Then there was appointed an executive committee, of which Representative Ransdell of Louisiana is the chairman, to care for the interests of the river and harbor work all over the country. The committee is to consist of fifteen members, and is divided between the Atlantic, Pacific and gulf coasts, the great lakes and the Mississippi. The members are Wm. H. Lincoln of Boston, Robt. Ramsey of Baltimore, E. J. Hale of Fayetteville, Ind.; Wm. Sanders of New Orleans, S. W. Duncan of Dallas, Tex.; John A. Fox of Blytheville, Ark.; W. P. Kennett, of St. Louis, Albert B. Bettinger of Cincinnati, W. B. Rodgers of Pittsburg, Henry Clark of Omaha, Harvey D. Goulder of Cleveland, Capt. Wm. J. Crosby of Detroit, John W. Ferris of San Francisco and A. H. Devers of Portland, Ore.; J. F. Ellison of Cincinnati will act as secretary of the committee without being a member.

After the officers had been announced there was a flicker of resistance on the part of the convention in attempting to get every state represented on the executive committee, but it was pointed out that this would make the committee too unwieldy for effective work, and it was abandoned, the committee being appointed as recommended.

Mr. Goulder, the newly elected president, spoke briefly, thanking the convention for the honor they had done him in selecting him for the place. The point of his remarks was that this was a national and not a local movement, and that the prosperity of one part of the country was dependent in large measure on the prosperity of the rest. Thus, he said, river and harbor improvement which affected the transportation system of the whole country could not be regarded as local work. An improvement anywhere affected the whole bulk of the people, and the people as a whole must go after the work before congress would realize that it was not a sectional but a national demand for improvement.

Mr. Goulder said that he was not particularly in favor of the bond issue plan for raising money for river and harbor work. He thought that the river and harbor bill ought to be put on just the same basis as any other bill before congress, and if there was not money enough available to do the work that ought to be done, then the government ought to borrow the money at a low rate of interest, and there was no organization in the world in better position to do such borrowing than the United States.

Mr. Sanders, the retiring chairman of the executive committee, was thanked for the ability and earnestness with which he had presided over the deliberations of this and the previous meeting. In the course of his reply he took occasion to invite the congress to hold its next meeting in New Orleans, where they would have before them the greatest system of river and harbor improvements in the world.

Representative Ransdell in accepting the chairmanship

of the executive committee said that it had been at his suggestion that the position of chairman had been made a salaried one, as he thought it would be too much work to put on the shoulders of any member without compensation. At that time, he said, he did not think of the chairmanship coming to him, but he wished to say that since it had he wanted to serve without pay. He did not want the pay in the first place, and he doubted the propriety of a member of congress holding a salaried position for an organization whose claims to legislation he would urge before congress.

The committee on resolutions then reported. The resolutions pointed out that owing to the fact that there had existed in the past an unjust prejudice against the appropriations recommended in river and harbor bills in consequence of lack of information and failure to realize the enormous benefits these improvements confer upon the people of the whole country, reducing and regulating the rates of freight for transportation and creating new and important channels for the conveyance of the products of the forest, field, mine and factory. And in view of the marvelous growth and development of the resources of this country and the increase of commerce, domestic and foreign, which have been the surprise and envy of all civilized nations, all to be enhanced by the completion of the Panama canal. And as these demand for their successful, continuous and further extension the more liberal policy on the part of the government. Likewise since the evolution of transportation agencies has added to and emphasized the other reasons for river, harbor and waterways improvements, the cogent one that such improvements afford a natural, proper and permanent competitive effect on the cost of transportation, invaluable to the whole citizenship.

Therefore the resolutions urge that the river and harbor congress, recognizing, appreciating and commending the invaluable work of the rivers and harbors committee of the house of representatives, and of the committee on commerce of the Senate, aided by the engineer corps of the army, deeply regrets the limitations resulting in appropriations, so small as to seriously embarrass and defeat the proper development of their labors.

That the national government, having assumed the improvement and control of rivers, harbors and waterways of the country, has unequivocally bound itself to discharge these obligations promptly by sound business methods, and instead of appropriating for the purpose at uncertain intervals of two or three years, should put river and harbor bills on a par with other great appropriation bills by annual appropriations and direct all such work economically and continuously, without the waste incident to intermittent effort.

That in view of the large number of projects for the improvements of our harbors, rivers, waterways and canals that have been approved by the engineers and the committee, requiring the expenditure of large sums of money, we not only recommend but urge an annual appropriation of at least \$50,000,000, confined to such works of development and improvement, and that until the accumulation has been cleared it is due the country that congress take whatever steps may be required to provide the sums necessary to promptly, effectively, economically complete accumulated worthy national projects, approved, adopted and recommended by the constituted authorities, now delayed only by lack of available funds.

That the executive committee appointed by this congress be and is hereby directed to use all proper means to further the purposes of these resolutions, actively and

in such manner as will assure the completion of these works of national development.

The congress heard a number of short speeches at the afternoon session and then adjourned to the white house to pay their respects to the president.

NEW LUMBER CARRIERS' ASSOCIATION.

Tonawanda, Jan. 24.—It was announced this week that at a meeting of the owners of lumber carrying vessels which will be held at Detroit on Monday, Feb. 5, a new lumber carriers' association will be organized. Vesselmen from one end of the lakes to the other, it is claimed, are interested in this movement and fully 60 per cent of the lumber tonnage on the lakes has already entered into an agreement to identify itself with this new association. Nearly all the vesselmen at the Tonawanda ports, who own lumber carriers, have signed an agreement.

While this new organization will be distinctly independent from the old Lumber Carriers' Association, it is stated, that members of the latter corporation who become identified with the new organization, may continue their membership in the older association as long as they comply with the rules of the younger one. There has been much complaint heard among the members of the present Lumber Carriers' Association over rate cutting and during the latter part of last season little if any attempt was made to keep up rates. Considerable dissatisfaction has arisen and a new association will be the outcome.

The projected organization aims to have a manager to get loads and provide vessel with an equal share of the business offered. A maximum rate of \$2.50 would be established between the head of the lakes and Buffalo or the Tonawandas, while a corresponding ratio in rates would be in force between other points. It is believed that an understanding of this kind would be greatly assisted by the continued decrease in the number of lumber carrying vessels on the lakes.

AT THE HEAD OF THE LAKES.

Duluth, Minn., Jan. 22.—The port collector's report for Dec. 31 showed a total registry at Duluth of 346 ships, with a registered tonnage of 599,774, and a net tonnage of 479,505. This included 123 steel steam vessels, with a tonnage of 442,030 gross. The increase in registration here began about ten years ago, and before that time there was nothing under Duluth registry but small harbor and coasting craft. Now it stands on a par with any port on the lakes, and far above all but one or two.

The increase in grain stocks for the week at Duluth-Superior, has been about 1,500,000 bu., of which half was wheat, 400,000 bu. flax and the rest oats and barley. There are now about 15,500,000 bu. in store here. The Belt Line and Globe houses, which were closed for a long time have been reopened and are taking in a little grain. The Itasca house, which has been shipping into store on ship, is to load out another cargo of 225,000 bu. this week. It loaded a cargo on the Heffelfinger a week ago.

A little ice covered the head of the lake Sunday, but the first wind took it off. The weather has been colder this week than any time for the winter, running down to 18 below. There is a great deal of show all about Lake Superior this winter, and the spring floods will doubtless be heavy.

The Duluth Universal Milling Co. has increased its capital to \$100,000, and is to enlarge its capacity and add about 25,000 bu. elevator storage. Near the mill property the Duluth-Superior Dredging Co. has just bought a headquarters location for \$8,000, and will improve it this year. Its rebuilds and new construction will be done there, and its boats will lie by there.

LUMBER TRADE OF THE TONAWANDAS.

North Tonawanda, Jan. 24.—The navigation season which closed last week with the arrival of the propeller Veronica, light from Buffalo, has been the most prosperous one in the history of the Tonawandas. Although there have been seasons when more lumber was received at the two local ports, the freight rates paid from upper lake ports to the Tonawandas and the unloading rates paid here were far superior to those paid in 1890 when over 718,000,000 ft. of stock was brought by vessels from upper lake ports.

With the lumber receipts for the season at 465,139,603 ft., the Tonawanda ports are at the head of the list as the largest lumber market in the world. The local ports won that distinction a year ago by surpassing Chicago by about 2,000,000 feet and according to the reports from the Windy City this year, the Tonawandas eclipse Chicago by over 12,000,000 ft. during the season of 1905. During the last thirty-three years the custom reports show how that 13,411,047,033 ft. of lumber stock was brought down the Niagara river from upper lake ports and unloaded at the Tonawandas.

The largest cargo of lumber that was floated down the Niagara river during last season was on the big vessel, Fred E. Meyers. This vessel arrived here last September with 1,430,000 ft. of stock which was over 300,000 ft. more than the second largest which was carried here on the propeller Oscar Flint. It has been estimated that \$169,000 was paid to the lumber handlers here last season for the unloading of lumber stock from vessels at the Tonawandas.

Had not the lumber carriers, especially those that traded between the Tonawandas and upper lake ports suffered so much damage in the storms of September, October and November, considerable more lumber stock would have been brought here last season. About 10,000,000 ft. of lumber, it is figured, was lost in storms last season. Edward Reisterer, one of the leading Tonawanda boat owners, who returned from Port Huron last week stated that the close of the last season left the lumber shippers of the upper lake ports in a peculiar predicament. He claims that there is about 75,000,000 ft. of lumber stock lying on the docks at upper lake ports booked for the Tonawandas which should have been shipped here last season. The shortage of tonnage was due to the large number of lumber carriers that were lost last fall in the storms on the lakes. The Tonawandas alone lost fourteen vessels which carry more than 10,000,000 ft.

The following are the lumber receipts by months during the seasons of 1905 and 1904.

North Tonawanda.	Feet 1905.	Feet 1904.
May	42,584,900	
June	52,149,900	59,042,300
July	45,480,500	51,900,600
August	56,519,000	50,248,200
September	58,630,700	55,905,200
October	54,829,000	51,337,600
November	38,119,900	53,458,000
December	17,072,923	15,295,100
Total	371,636,823	337,187,000
Tonawanda.	Feet 1905.	Feet 1904.
May	15,731,326	1,408,000
June	10,740,955	13,614,000
July	10,315,008	11,806,338
August	13,379,632	13,831,217
September	16,759,445	7,444,018
October	14,535,000	13,649,938
November	12,505,414	11,039,830
Total	94,002,780	27,783,341

The following figures show the total receipts of lumber stock

by seasons since Tonawandas became known as a lumber market:

Year.	Feet.	Year.	Feet.
1905	465,139,603	1888	269,522,200
1904	414,806,940	1887	501,237,856
1903	458,555,122	1886	505,425,000
1902	406,922,933	1885	498,361,400
1901	451,596,420	1884	398,871,052
1900	409,728,377	1883	493,268,223
1899	541,576,959	1882	433,241,000
1898	476,066,136	1881	415,070,913
1897	601,376,450	1880	323,370,814
1896	489,675,500	1879	250,609,043
1895	421,372,000	1878	206,655,122
1894	406,538,000	1877	221,897,007
1893	430,249,000	1876	207,728,227
1892	498,005,000	1875	155,384,805
1891	505,512,000	1874	144,754,000
1890	718,650,900	1873	104,999,000
1889	676,017,200		

The figures recorded at the local customs offices during last season show that A. Weston & Son, the Eastern Lumber Co. White, Rider & Frost and Smith Fassett & Co. received each more than 30,000,000 ft. of lumber stock from upper lake ports by vessel. The Western Co., of which Charles Weston, the lumber king is president, received the most stock, 53,495,363 ft. A list of the dealers who received over 1,000,000 ft. and the amounts credited to each, follows:

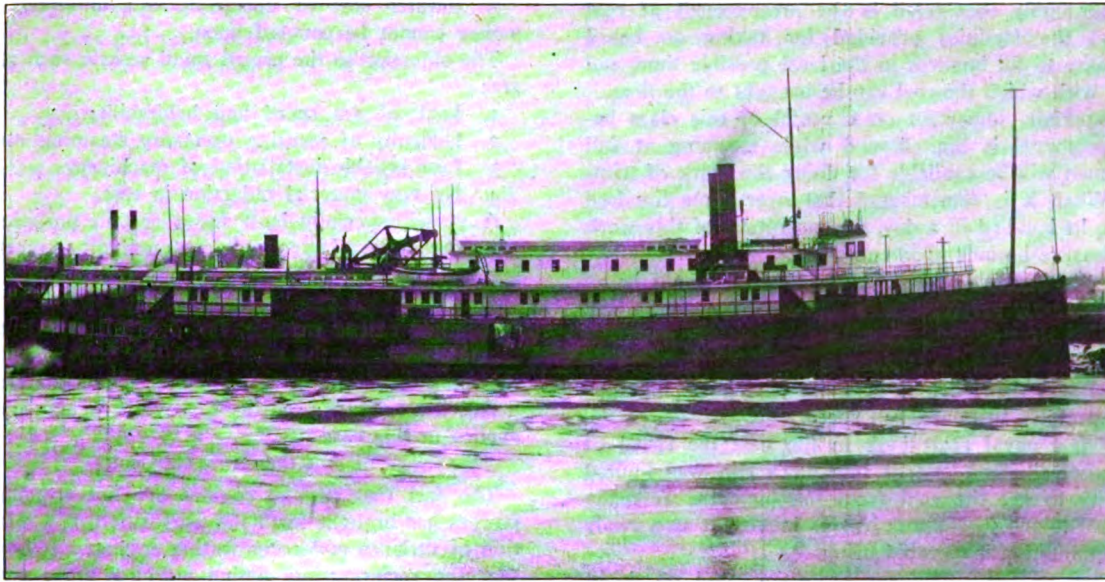
Names.	Feet.
Northern Lumber Co.....	17,009,329
A. Weston & Son.....	52,495,363
Kelsey-Dennis Lumber Co.....	7,820,840
R. T. Jones Lumber Co.....	27,855,945
Silverthorne & Co.....	16,033,000
Brady Bros.....	11,625,006
J. P. Mackenzie.....	16,600,545
L. H. Swan & Co.....	6,299,585
Edward Hines Lumber Co.....	2,950,000
J. & T. Charlton.....	1,296,735
White Lumber Co.....	8,788,476
White, Rider & Frost.....	33,060,978
Smith, Fassett & Co.....	34,139,564
McLean Bros.....	18,881,663
Louis Sands Lumber Co.....	6,020,857
DeLaplante & McBurney.....	17,103,792
Robinson Bros.....	19,800,891
W. H. Cowper & Co.....	11,351,982
White, Gratwick & Mitchell.....	24,342,000
Eastern Lumber Co.....	45,009,800
A. A. Bellinger.....	27,970,000
Oille & McKeen.....	3,000,000
Spider Lake Saw Mill & Lumber Co.....	4,333,000
Lafaiver & Co.....	10,795,000
Dodge & Bliss.....	2,876,970
Wilson Box & Lumber Co.....	6,870,000
Singer Manufacturing Co.....	1,675,000
C. H. Stanton.....	1,311,000
C. B. Lentz Lumber Co.....	4,975,587
J. A. McKenney.....	1,847,000
W. E. & C. E. Kelsey.....	1,400,000
George A. Meyers.....	2,014,000
Flanner & Reeves.....	2,524,000
Hurd Bros.....	2,450,000
H. M. Loud's Sons Co.....	1,505,000
Buffalo Box Co.....	2,407,000

The Great Lakes Dredge & Dock Co. of Chicago has purchased the property of the Lake Superior Contracting & Dredging Co., of Duluth.

LENGTHENING THE STEAMER CITY OF CHICAGO

The Manitowoc Dry Dock Co., of Manitowoc, Wis., has just completed the lengthening of the side-wheel steamer City of Chicago, owned by the Graham & Morton Trans-

portation Co. This steamer was delivered at the ship yard after the close of the summer season and was immediately placed in the dry dock, cut apart and 28 ft. added between the boilers and engines. The additional strengthening required in consequence of this, was furnished by a double

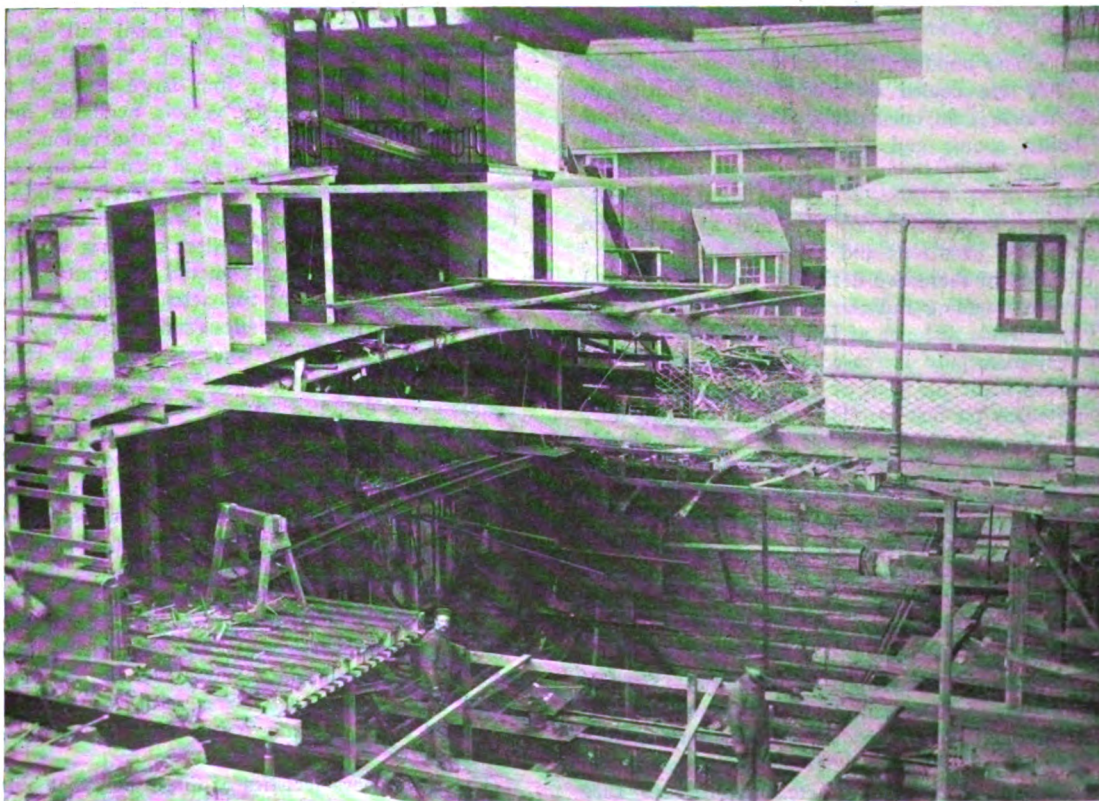


THE CITY OF CHICAGO RECONSTRUCTED.

ported in about 60 days and on her trial trip was not only faster, but more seaworthy than before.

Cramp's, Philadelphia, have been awarded the contract to build the hulls for two steamships for the New Eng-

land Steamship Co. The vessels will be 396 ft. long, 52 ft. beam and 22½ ft. depth of hold. The Quintard Iron Works of New York will supply the machinery.



THE CITY OF CHICAGO CUT AMIDSHIP

channel steel arch on each side of the boat. This arch was bracketed to the shear strake and stringer of the boat at the ends and at the points underneath the cabin deck was effi-

ciently connected to the steel beams. The object in lengthening this steamer was to give her more displacement in order that her paddles might not be so deeply immersed. The work was successful both so far as its accomplishment and the results are concerned as the boat was returned to

DESIGN OF SCOUT CRUISER.

In the MARINE REVIEW of Jan. 11, Lieut. H. C. Dinger's design for a scout cruiser was considered in part. The design is now concluded with a discussion of the coal bunkers and mixed installations of the proposed scout.

One of the most essential features, and also one less likely to be thoroughly considered is the arrangement of coal bunkers and the facilities provided for taking on board coal and ability to fill bunkers in the least possible time, and the rapidity with which the coal can be brought to the fires.

This is especially important on a vessel of this class because the personnel is limited, and while steaming at full power few men will be available for doing the work of trimming coal. When it is remembered that over three hundred tons have to be handled in a day, the magnitude of this work may in a measure become apparent.

In order that bunkers be easily stowed they should be as large and as nearly rectangular in shape as the spaces will allow. Double tiers of bunkers with the consequent double handling of coal should be avoided if possible. Bunkers of a capacity of less than 30 tons or those having sloping tops or bottoms prohibit sustained full speed.

On many fast naval craft built in the past the speed of the vessel after the first one or two day's run was limited by the ability to get the coal from the bunkers. A ready supply of coal to the furnaces is just as important as a ready supply of ammunition is to rapid firing.

Coal bunkers may be used for protection, and no doubt coal is in many cases of considerable value for this purpose, but if the coal is placed in accessible pockets and triangular spaces, which can neither be stowed nor emptied, their value as fuel receptacles is almost nil, and much better protection would have been afforded by the same weight of armor plate.

The old saying advises us that "man cannot well serve two masters," neither can coal be burnt in the furnace and at the same time act as protection, and when this is thoroughly recognized, the steaming qualities of vessels will perhaps be greatly improved.

On the three scouts building, the coal breakers are large and roomy. They are coaled directly through scuttles in the main deck, which is an open deck. The bunkers extend abreast the boiler rooms and there are reserve bunkers abreast the forward engine room.

Other examples of scout vessels recently built and building are the English scouts of 3,000 tons and 25 knots, the German of 2,700 and 3,200 tons and 24 knots speed.

The chief criticism of these two designs is their limited coal capacity and hence steaming radius. If these vessels cannot steam for a considerable distance at full speed, their value as real scouts is very materially decreased.

Many authorities favor the plan of not building scout vessels and relying solely on fast merchant vessels for this duty in case of war. Such merchant vessels are a very valuable last resource, but for primary dependence for scouting they have many disadvantages unless such vessels are built with requirements of scouts embodied in their original design.

The objections to such vessels are:

1. Large crew needed to man them. The number of combatants available is always limited, and tactical considerations would require that each service be rendered by the least possible number.
2. Vessels not ready at beginning of hostilities. Considerable time will be required to take the vessel from the merchant service and make her ready for military service as a scout.
3. Large amount of coal, stores, etc., required to keep such vessels in operation. An unlimited supply of coal cannot be depended upon especially in foreign waters.
4. Large draught of vessels, preventing entrance to many harbors and hence lack of ability to quickly communicate with the shore or to make observations in shallow waters.

5. More limited maneuvering qualities of large merchant vessels, greater target, less protection to machinery due to arrangement of installation.

6. Difficulties liable to be encountered in transferring merchant crew to naval service, or of obtaining a new naval crew and training same.

7. Greater cost of operation. An unlimited amount of money cannot be counted upon.

The objection to the use of small vessels such as destroyers are:

1. Lack of sea speed and habitability.
2. Difficulty of securing necessary steaming radius.
3. Less reliable installation of machinery.
4. No very material reduction in cost.

A vessel especially built for a certain purpose will, as a general rule, be a better tool than one built to meet the opposing requirements of several different services.

Fast merchant vessels should by all means be utilized to the fullest extent possible, but for primary dependence for scouting purposes the scout especially built and designed for that purpose should be relied upon. The same argument that makes it a military necessity to have a regular standing army applies in this case.

MIXED INSTALLATIONS.

The fact that turbine engines are not economical at low powers has brought forth the proposition of a mixed installation of turbines and reciprocating engines. It being intended that the reciprocating engine working on a separate shaft should be used for low speeds, and that when more power is necessary that turbines be used in addition to the reciprocating engine.

Such an installation has the disadvantage of producing complication, which is undesirable, but it has the great advantage of ensuring reasonable economy at low cruising speed, and the advantages for full power that turbines possess. This mixed installation is likely to be adopted in a number of foreign vessels fitted with turbines.

The number of scout vessels needed will depend upon the general organization of the fleet. There ought to be at least one scout for every four large armored vessels. The number of fast merchant vessels available for conversion into scouts should be taken into consideration. As a general rule it would seem to be a good plan to have the converted scouts do the detached scouting service, and to have the regular scouts, which probably will have been exercised with the fighting fleet, to do the fleet scouting work.

The work of the scouts should be scouting only, and any attempt to utilize them for actual fighting purposes or for matters other than their designed work should be carefully guarded against. Their work is very important and their operations must be regulated in view to that work alone. As they are designed to act as the eyes of the fleet, their signal apparatus and the training of their signal force should be well elaborated and of the highest efficient character.

The development of scouts and their methods of use must be taken in hand at some time previous to the outbreak of war. If they are left unprovided for the fighting fleet will not be ready.

Note.—The above notes are but a discussion of the possibilities of scout cruisers as originally designed under the general limitations and requirements as imposed by the last naval appropriation act. The actual completed vessels will no doubt differ in many points from the details enumerated above.

The chief characteristics of the design that bids were made on are as follows:

Length between perpendiculars.....	420 ft.
Breadth	46 ft. 8 in.
Draught, fully loaded.....	18 ft. 3½ in.
Depth, amidships	36 ft. 5 15-16 in.

Displacement, loaded	4,310 tons.
Draught, on trial.....	16 ft. 10 in.
Corresponding displacement on trial.....	3,750 tons.
Speed	24 knots.

BATTERY.

Twelve 3-inch guns (later changed so as to have two 5-inch guns and a smaller number of 3-inch).

Two 21-inch submerged torpedo tubes.

3,600 rounds of 3-inch ammunition to be carried.

8 torpedoes to be carried.

Estimated weight of battery and full ammunition, 140 tons.

LIVERPOOL SHIPPING LETTER.

Liverpool, Jan. 15.—On January 27 the Empress of Ireland, 14,500 tons, and 18,000 H. P., will be launched from the Fairfield company's yard. She and her sister ship Empress of Britain, recently launched, are intended for the Canadian-Pacific Railway Co.'s Atlantic service, making their maiden voyage from Liverpool to Quebec and Montreal in May and June respectively. They will be the largest and fastest ships.

SUEZ CANAL STATISTICS.

The following were the receipts from shipping using the Suez canal in the month of December last, and in the whole of the last three years:

	Month of December.		
	1905	1904	1903
Ships.....	305	423	316
Receipts.....	8,920,000 f.	11,100,000 f.	9,010,000 f.
	Twelve Months.		
	1905	1904	1903
Ships.....	4,116	4,237	3,761
Receipts.....	113,829,667 f.	111,733,000 f.	103,620,260 f.

A notice in the company's bulletin states that since the maximum draught of water authorized for vessels passing through the canal, which was 26 ft. 3 in. has been increased to 27 ft., and the navigation dues have been reduced 75 centimes, Article 11 of the regulations has been modified in accordance with the reduction in the tariff on laden vessels which now stands at 7.75f. Vessels in ballast will be allowed a reduction of 2.50f per ton as heretofore. The company is now paying the half-yearly coupons as follows: Ordinary shares, net of taxes 50f. 40c; redeemed ordinary shares, 38f 78c; founders' shares 22f.

COMPARISON OF SHIPBUILDING OUTPUTS.

A very interesting article has just appeared in *Lloyds Shipping Gazette* which will interest readers of the *MARINE REVIEW*. It deals with a comparison of ship building values, and says "A particular grievance of the ship builder at this season of the year is invariably that the compilers of newspaper statistics give the gross tonnage of his work instead of its value. There is no comparison, he will tell you, between the value of say Mr. Pierrie's (Harland & Wolff's) output, and the value of say again W. Doxford & Co. We admit this at once, and plead in extenuation of the offence that the ship builder's reluctance to state the value of his work is the cause of it. In response to the clamor for a comparison of values, however, a correspondent has taken the leading concerns on the list which we printed recently, and, giving each class of vessel a particular value per ton, has rearranged the names. On a tonnage basis the six firms which led the world in ship-building are:

	Tons.
American Shipbuilding Company.....	136,795
W. Doxford & Sons.....	86,632
Harland & Wolff.....	85,287
Swan, Hunter & Wigham Richardson.....	74,424
Russell & Co.....	71,540
W. Gray & Co.....	63,226

These tons are, without exception, gross tons. None of the

firms, that is to say launched any warships, although in addition to building vessels representing 85,287 tons gross, Mr. Pierrie's firm constructed propelling machinery for H. M. S. Hibernia. People who know the industry intimately can tell at a glance which of these six records is the best in point of value. The Belfast firm is, far and away, best. But while the substitution of value for tonnage as a base does this good turn to Harland & Wolff, it does it the bad one also of bringing the Irish establishment into competition with the great English and Scotch companies which lay themselves out for warship work. Most money is in warships, and, as we say, there is only the Hibernia's engines of this class of work in Mr. Pierrie's return. In point of value—unofficial estimated value, be it noted—the first ten firms in the world are placed in this order by our correspondent:

	Estimated Value.
Vickers, Sons and Maxim.....	£3,108,000
Armstrong, Whitworth & Co.....	£2,656,000
Harland & Wolff.....	£2,474,000
Fairfield Co.....	£1,798,000
American Shipbuilding Co.....	£890,000
John Brown & Co.....	£762,000
W. Doxford & Co.....	£520,000
Swan, Hunter & Wigham Richardson.....	£484,000
Russell & Co.....	£448,000
W. Gray & Co.....	£395,000

Another point to note is that the value of the machinery is in every case credited to the ship builder. If the value of the machinery were, in the one or two necessary cases, deducted, the position of more than one concern might be considerably improved. But as it stands, the table is ungenerous to nobody. It does not pretend to be more than approximately accurate. The value estimated is only the value of the vessels launched; the totals take no stock of work done during the year on vessels yet to be launched or on vessels fitting out. This is another drawback, but it may be partially removed by taking longer periods than a year. The table is merely an unofficial effort to give the ship builder the kind of comparison he desires, and its most significant fact for the interested public is that in its first half-dozen names are no fewer than four which do not appear on the tonnage honors list at all.

Mr. W. Harrison Bradly, the American Consul at Manchester, has prepared a statistical report showing the character and value of exports from the consular district of Manchester to America in the past year, and preceding years. The figures for the past year show a decided increase on the preceding year, the value of exports being \$11,455,834, as against \$9,228,421 in 1904. In 1903, however, the declared value was \$11,822,605. Cotton piece goods advanced from \$2,090,347 in 1904 to \$3,294,446 in 1905; machinery from \$664,039, to \$840,143; paper, paperhangings, etc., from \$129,060 to \$146,530; and silk yarn from \$66,539 to \$104,760. Cotton, velvets, fustians, etc., declined from \$1,391,494 to \$1,041,851, and card clothing from \$93,100 to \$77,309.

The committee of the Sailing Ship Owners International Union met in Liverpool this week when there were present, besides British, the French and German members. The deliberations took place in private, but it transpired that no alteration was made on the minimum rates of freight already fixed, and the tonnage entered in the Union remains satisfactory. The chairman, Mr. R. W. Leyland, (Liverpool) speaking at the luncheon given to the delegates said that while they knew that if the sailing-ship industry was a dying one, there was no reason why it should be artificially effaced. Their union would, as far as possible, keep it upon its feet. If they held together the tonnage they had, and united and kept up a minimum rate of freights, they would at all events prevent the loss which had occurred during the last few years, and possibly in the last days of the sailing ship pull back something of that which they had lost.

BRITAIN'S SHIP BUILDING DURING 1905.

Following is a summary of the ship building returns of the United Kingdom for 1905 arranged in the order of tonnage built by each firm.

No.	Name of firm.	Place.	No. of Ships	Total Tons.*
1	Wm. Doxford & Sons, Ltd.	Wear	20	86,632
2	Harland & Wolff, Ltd.	Belfast	9	85,287
3	Swan, Hunter, Wigham-Richardson, Ltd.	Tyne	22	82,727
4	Russell & Co.	Clyde	18	71,540
5	Sir W. G. Armstrong, Whitworth & Co. Ltd.	Tyne	16	67,652
6	Wm. Gray & Co., Ltd.	Hartlepool	19	63,226
7	Workman, Clark & Co., Ltd.	Belfast	12	58,190
8	J. L. Thompson & Sons, Ltd.	Wear	13	48,009
9	Northumberland Ship Building Co.	Tyne	10	45,805
10	Furness, Withy & Co., Ltd.	Hartlepool	10	44,592
11	Vickers, Sons & Maxim, Ltd.	Barrow	—	41,500
12	Sir James Laing & Sons, Ltd.	Wear	13	39,026
13	Fairfield Ship Building Co., Ltd.	Clyde	6	37,835
14	Barclay, Curle & Co., Ltd.	"	6	36,354
15	D. & W. Henderson & Co., Ltd.	"	8	35,328
16	Ropner & Son.	Tees	9	33,560
17	R. Stephenson & Co., Ltd.	Tyne	10	32,750
18	Wm. Hamilton & Co., Ltd.	Clyde	10	31,282
19	Wm. Denny & Bros.	"	9	30,202
20	Scotts' Shipbldg. & Eng. Co., Ltd.	"	11	29,182
21	Hawthorn, Leslie & Co., Ltd.	Tyne	6	28,854
22	J. Readhead & Sons.	"	8	28,241
23	Short Bros., Ltd.	Wear	9	27,805
24	Sir Raylton Dixon & Co., Ltd.	Tees	7	27,780
25	R. Craggs & Sons.	"	7	26,804
26	A. Rodger & Co.	Clyde	8	26,734
27	Caird & Co., Ltd.	"	3	25,801
28	W. Pickersgill & Sons.	Wear	6	23,950
29	Grangemouth & Greenock Dock Yard Co.	Clyde	10	22,864
30	A. Stephen & Sons, Ltd.	"	6	22,241
31	A. McMillan & Son, Ltd.	"	7	21,409
32	Irvine's Shipbldg. & D. D. Co., Ltd.	Hartlepool	6	21,080
33	John Brown & Co., Ltd.	Clyde	3	20,606
34	Craig, Taylor & Co., Ltd.	Tees	6	18,641
35	Tyne Iron Ship Building Co., Ltd.	Tyne	5	17,540
36	J. Blumer & Co.	Wear	6	16,676
37	Earle's Shipbldg. & Eng. Co., Ltd.	Humber	22	16,436
38	Palmer's Ship Building Co.	Tyne	6	15,900
39	Napier & Miller, Ltd.	Clyde	14	15,381
40	Sunderland Ship Building Co., Ltd.	Wear	8	15,087
41	Bartram & Sons.	"	4	14,528
42	Robert Thompson & Sons.	"	4	14,251
43	Gourlay Bros. & Co. (Dundee), Ltd.	Tay	6	11,967
44	Blyth Ship Building Co., Ltd.	Blyth	5	11,806
45	Clyde Ship Building & Eng. Co., Ltd.	Clyde	6	11,308
46	Caledon Shipbldg. & Eng. Co., Ltd.	Tay	5	8,356
47	Simons & Co., Ltd.	Clyde	10	7,400
48	S. P. Austin & Son, Ltd.	Wear	6	7,293
49	Cook, Welton & Gemmell.	Beverley	32	6,902
50	William Beardmore & Co., Ltd.	Clyde	3	6,250
51	Fleming & Ferguson, Ltd.	"	10	6,050
52	Osbourne, Graham & Co.	Wear	4	5,946
53	Smith's Dock Co., Ltd.	N. Shields	23	5,771
54	Campbeltown Ship Building Co.	Camp'bton	3	5,490
55	Lobnitz & Co., Ltd.	Clyde	16	5,483
56	Ailsa Ship Building Co.	"	12	5,394
57	Cochrane & Sons.	Humber	24	5,326
58	Hall, Russell & Co.	Aberdeen	8	5,236
59	Murdock & Murray.	Clyde	11	5,087
60	J. I. Thornycroft & Co., Ltd.	Thames &c	32	4,335
61	London & Glasgow Ship Building Co.	Clyde	1	4,295
62	Ramage & Ferguson, Ltd.	Forth	5	3,498
63	John Crown & Sons, Ltd.	Wear	3	3,377
64	Ferguson Bros.	Clyde	7	3,050
*1	Richardson, Duck & Co.	Tees	9	31,888

*2	John Priestman & Co.	Wear	5	21,009
*3	W. Dobson & Co.	Tyne	6	16,576
*4	Wood, Skinner & Co., Ltd.	Tyne	7	12,741

*Board of Trade Gross Tons Register, including erections.
†Board of Trade Gross Tons Register.

SUMMARY OF NAVAL CONSTRUCTION.

The monthly summary of naval construction, issued by the bureau of construction and repair of the navy department, shows commendable progress upon all naval vessels. Following is the summary:

Name of Vessel	BATTLESHIPS. Building at	Per cent of completion	
		Dec. 1, 1905	Jan. 1, 1906
Virginia	Newport News S. B. Co.	97.	98.
Nebraska	Moran Bros. Co.	83.	84.24
Georgia	Bath Iron Works.	90.15	91.24
New Jersey	Fore River S. B. Co.	93.7	95.5
Rhode Island	Fore River S. B. Co.	98.	99.
Connecticut	Navy Yard, New York.	92.66	93.69
Louisiana	Newport News S. B. Co.	92.56	94.17
Vermont	Fore River S. B. Co.	68.7	70.7
Kansas	New York S. B. Co.	67.7	69.8
Minnesota	Newport News S. B. Co.	77.10	80.33
Mississippi	Wm. Cramp & Sons.	45.74	47.32
Idaho	Wm. Cramp & Sons.	42.58	45.39
New Hampshire	New York S. B. Co.	29.2	33.4
ARMORED CRUISERS			
California	Union Iron Works.	86.2	87.5
South Dakota	Union Iron Works.	84.9	86.2
Tennessee	Wm. Cramp & Sons.	90.02	91.66
Washington	New York S. B. Co.	80.4	91.9
North Carolina	Newport News S. B. Co.	26.77	30.74
Montana	Newport News S. B. Co.	22.29	25.84
PROTECTED CRUISERS.			
St. Louis	Neale & Levy S. & E. B. Co.	83.62	86.
Milwaukee	Union Iron Works.	86.	87.9
Charleston	Newport News S. B. Co.	99.9	100.
TRAINING SHIPS.			
Cumberland	Navy Yard, Boston.	95.	95.
Intrepid	Navy Yard, Mare Island.	97.5	97.5
SCOUT CRUISERS.			
Chester	Bath Iron Works.	13.27	15.53
Birmingham	Fore River S. B. Co.	15.4	13.2
Salem	Fore River S. B. Co.	14.8	17.6
TORPEDO BOATS.			
Goldsborough	Wolff & Zwicker.	99.	99.
O'Brien	Lewis & Nixon.	99.	99.
SUBMARINE TORPEDO BOATS.			
Submarine T. B. No. 9,	Fore River S. B. Co.	43.5	46.9
Submarine T. B. No. 10,	Fore River S. B. Co.	36.9	37.3
Submarine T. B. No. 11,	Fore River S. B. Co.	37.	39.9
Submarine T. B. No. 12,	Fore River S. B. Co.	33.6	38.7

WORK ON THE BATTLESHIP NEBRASKA.

Work on the battleship Nebraska, at Seattle, Wash., is now largely confined to the finishing up of the interior of the officers' rooms, tiling and bath rooms, and preparing for the big guns and other equipments which are soon to arrive from the east. The delay in the arrival of her equipment may delay the trial trip of the Nebraska some time later than July, which was the date originally set. Moran Bros. Co., the contractors, announce that their firm have been greatly handicapped by the lack of material which has prevented the heavy work of setting the big guns from being carried out. There are three 12-in. guns already on hand, and one more en route. None of the 6-in. guns have reached Moran's yard yet.

However, the ordnance department at Washington assures the contractors that all the armament will be forwarded within the next thirty days.

Congressman J. Adam Bede, called upon Chief Engineer Alexander Mackenzie in relation to Duluth harbor improvement last week.

PROBLEMS FOR PACKAGE FREIGHT LINES.

Buffalo, Jan. 23.—The many problems that confront the lake trades are fully shared by the lines that carry package freight, perhaps about equally, whether they carry passengers or not, for though the passenger traffic is increasing of late, it is more exacting than it used to be, and a steamer to be successful in the business must be a floating hotel, with an immense crew and a build that does not favor the carrying of much freight, even when the passenger traffic is light or time trips are not kept up.

Perhaps the hardest problem now is to hold the Lake Michigan business against the railroads. The rail lines to the seaboard from that and tributary districts are constantly eating up what used to be a great accumulation of freight waiting for the opening of the lakes in April. The fact that Buffalo no longer approaches her maximum of 10,000,000 bushels of grain by the first fleet, tells on the package-freight lines as well as on others, for flour, the chief commodity brought eastward by the lake lines, escapes by rail in much the same way that grain does, the roads boasting that they can now lay down any freight at the seaboard as cheaply as the lake lines can.

There are two elements in the race that are yet to be accounted for before it is known who is to come out ahead. One is the probability that the ton-mile cost of moving freight by rail has about reached its limit of cheapness, while the speed and promptness of delivery are becoming less than they were, as freight offers, especially through the fall and early winter, in much greater quantity than the roads can handle it. This double problem must be worked out by the roads alone. As it looks now, especially with practically every class of shipper fairly demoralized today, on account of car shortage, the roads are not going to solve the problem satisfactorily alone.

The other new element is the rebuilt Erie canal. With New York city complaining so bitterly this fall because the grain from Buffalo going to Philadelphia and Baltimore, when she wants it all, and with Buffalo getting more grain by rail all the season than by lake, apparently because there is then no delay here and the through rail rate compares favorably with the at-and-east (that is, the lake-and-rail) rate, we are persuaded that even the old 8,000-bushel canal boat, if plenty enough to carry off the surplus, would have saved the harbor of its present congestion and secured a much larger amount of grain by lake that can be handled here now, even with canal freights now 5 cents on wheat to New York.

The difficulty is that the new Erie canal is still far away and while it is hardly expected that conditions will be less favorable to it when finished than now—indeed it looks as though they would be much more favorable than they are now, unless capitalists go to building more trunk-line railroads—but it is going to be a long time to wait. The difficulty is that boat builders do not think it will pay to put on a new fleet of the present-size boats, so that the canal is to be of small account in an emergency for several years yet. For it is as an emergency carrier that any waterway must be regarded in the main, unless there is a peculiar lay of the land, as is the case with the Lake Superior district, that gives the water route a perpetual advantage.

Package-freight carriers say that while the Missouri river district still contributes to their freight list it has not done so well as it was expected to, though Lake Superior is now doing well, and is considered as safe and sure as ever. How much of the new Canadian northwest will become tributary to the lake route is also to be determined, and the problem of the permanency of the west-bound freight as to be solved every season. It is observed by boatmen that there is always so much accumulation in

New York at the opening of the canal season, that freights are very high, but it runs down after awhile, and closes with rates very low. A great part of it goes up the lakes by the package-freight lines.

As to the size of the package-freight steamer it is intimated that the limit is hardly reached, though the present model is so far in advance of the old, that there will be little for the small sized liner to do hereafter, except as a supply in an emergency. Practically all of the tied-up liners have gone into commission this fall. The season is about over. Some of the lines last week shut off freight, which is mostly flour, from interior points in the northwest, and others will follow soon. A large amount has been carried, but the car shortage here has reduced the amount considerably.

Faith in the business is shown by the rebuild of the Vermont Central line, by the New York Central interest. One steamer has been contracted for and others will follow. Careful management has already established a two-weeks' round trip from Chicago to Ogdensburg, and a twelve-day trip is aimed at. The boats will carry 2,100 tons through the Welland. The Anchor line is making a fine record with east-bound package freight to the interior of Pennsylvania from Erie.

JOHN CHAMBERLIN.

MISSISSIPPI RIVER IMPROVEMENT.

Senator John C. Spooner:—"I appreciate quite fully the necessities of the Mississippi river, and have always favored its improvement."

Congressman Joseph E. Ransdell:—"I will be very glad to attend a convention in St. Louis if public and private business, at the time, permits, as I am convinced that great good comes from systematic and wise agitation of such measures. The Mississippi river between Cairo and St. Louis seems to have been in a bad way for several years, and as a member of the Rivers and Harbors Committee I have been surprised at the lack of interest displayed in it by the business men of your city. I hope you will pardon me for saying that other sections of the country seem to have been far more wide-awake to their interests than you have to those of the great 'Father of Waters.' I live on its bank; have, for many years taken the deepest interest in the perfection of its levee system; and am thoroughly convinced that its navigation can be so improved at a moderate cost as to make it a far better regulator of railroad rates than a dozen Interstate Commerce Commissions armed with the power which our President proposes to give them."

Congressman John L. Kennedy:—"I shall be glad to co-operate with you in any reasonable policy of bank protection for the Mississippi, providing you and those interested with you will co-operate with us in getting like protection for the Missouri river."

Congressman A. F. Dawson:—"I appreciate the value to my district and State of the improvement of the Mississippi river, and I have had the honor of rendering some slight assistance in the past in the matter of securing appropriations therefor."

Governor S. H. Elrod: "It will be a pleasure to aid you in any way that I can. If it is possible, will gladly attend the convention."

Congressman J. H. Davidson:—"I am an ardent and loyal friend of the Mississippi river, and may be counted upon to do what I can in its behalf."

Congressman James T. Lloyd:—"I will gladly assist in the movement for the betterment of the Mississippi."

Congressman Frank B. Fulkerson:—"I am convinced of the fact that our rivers have been too long neglected already, and something should be done."

AROUND THE GREAT LAKES

The Grand Lodge of the Ship Masters' association will meet at Buffalo on Jan. 30.

Mr. A. H. Hawgood, of Cleveland, went to Buffalo last week to look after the repairs of the steamer Harold B. Nye.

The Nessen Transportation Co., Manistee, Mich., has just sent out, as a souvenir, a good half-tone reproduction of the steamer, Manistee.

The steamer building at the West Superior yard of the American Ship Building Co. for H. H. Oakes, of Detroit, will be named E. J. Erling.

Capt. C. C. Balfour will sail the steamer Abraham Stern building at the Superior yard of the American Ship Building Co., for the Hawgoods of Cleveland.

Capt. Charles B. Galton, of the Mitchell fleet, will bring out the steamer Loftus Cuddy, which is at the Lorain yard of the American Ship Building Co., for Capt. John Mitchell.

At the annual meeting of the Licensed Tugmen's Protective Association in Chicago last week, resolutions extending moral support to the Lake Pilots' Protective Association were adopted.

Bids for dredging the Superior portion of Black Rock harbor, at Buffalo, were opened last week, and of eight bidders the Empire Engineering Corporation of New York was the lowest, at \$603,154.20.

Mr. E. I. Jenkins, of Cleveland, who has been for the past few years at the head of the lake lodges of the Marine Engineers' Beneficial Association, will sail on one of the Cleveland Cliffs Iron Co.'s steamers next season.

Capt. W. C. Brown has been appointed to look after the completion of the new 10,000-ton steamer Frank C. Ball recently launched at the Ecorse yard of the Great Lakes Engineering Works for G. A. Tomlinson of Duluth.

The big car ferry Pere Marquette No. 17 broke her steering gear in Lake Michigan this week and floundered about in the heavy sea for several hours while temporary repairs were being made. She then returned to Milwaukee.

At the annual convention of the Licensed Tugmen's Protective Association in Chicago last week, the following officers were elected: President, T. V. O'Connor, Buffalo; vice presidents, A. McAnty, St. Joseph, Mich., Martin Cole, of Duluth, Edward Kemmet of Cleveland; secretary, H. H. Vroman, Buffalo; treasurer, Peter Gagnon, Two Rivers, Wis. The next convention will be held in Detroit.

Mr. James C. Gilchrist of Cleveland in an interview in Duluth this week predicted a movement of 36,000,000 tons of ore for the season of 1906. Mr. Gilchrist said, in response to an inquiry, that he did not believe the 600-footer a very serviceable ship for an outsider to own. He stated that the ordinary shipper cannot furnish a full cargo for the 10,000-ton ship and that a 6,000 or 7,000-ton ship is better for the independent vessel owner or for the shipper who has not any mines of his own.

The Buffalo Dry Dock Co. and the Empire Ship Building Co., of Buffalo, have all the repair work they can possibly attend to at present. At the Buffalo Dry Dock, the Anchor Line steamer Muncy is in No. 1 dock for bottom repairs. The Mutual Line steamer Northern Wave is in No. 2 dry dock for repairs also. The Veronica, of the Tonawanda Iron & Steel Co.'s fleet is in No. 3 dock for calking and the Chili is in No. 4 dock for bottom repairs. The Onoko and Panay are awaiting their turn.

At the annual meeting of the Gilchrist Transportation Co., of Cleveland, held recently, the following board of directors was elected: F. W. Gilchrist, Alpena, Mich.; F. M. Osborne, Cleveland; J. C. Gilchrist, Cleveland; F. W. Hart, Cleveland; J. A. Gilchrist, Cleveland; J. B. Wood, Bellevue; A.

J. Gilchrist, Cleveland; W. H. Gilcher, Sandusky, and J. D. Gilchrist, Cleveland. The directors elected the following officers: J. C. Gilchrist, president; F. M. Osborne, vice president; A. J. Gilchrist, secretary and J. D. Gilchrist, treasurer. The retiring directors are R. E. Schuck and F. R. Gilchrist.

The Dominion Transportation commission has made a report to the government recommending the nationalization of the three leading ports of Canada and making them free from all charges save those from dry docks and elevators. The ports to which this applies are Fort William, Port Arthur and Mission River on Lake Superior; Depot Harbor and Midland on Georgian Bay; Port Colborne on Lake Erie; Kingston, Montreal, Victoria, Quebec, St. John, Halifax, Sydney, Vancouver, the Pacific terminus of the Grand Trunk Pacific and the terminus of the Canadian Northern. The commission reports in favor of extending the Intercolonial into Georgian Bay, which would stimulate the export trade from the ports of St. John and Halifax. Important improvements are suggested in the harbors of Toronto and Montreal.

PERSONAL.

Robert Haskins has resigned the position of general freight agent of the Metropolitan Steamship Co. to accept a similar position with the New England Navigation Co.

Mr. Frank L. Vance of the firm of David Vance & Co., vessel owners and marine insurance agents of Milwaukee, has been elected a director of the Wisconsin Central.

Mr. John Callahan, manager of the Norfolk & Washington Steamboat Co., Washington, D. C., recently visited Newport News to inspect the progress of work upon the new steamer Jamestown, building for the company at the yard of the Newport News plant.

Mr. Wm. G. Mather, president of the Cleveland Cliffs Iron Co., has left for Europe to spend a couple of months inspecting the charcoal furnaces of Sweden, Norway, Austria-Hungary and Germany. He is accompanied by Mr. J. C. Holt, of Grand Rapids, secretary of the Superior Charcoal Furnace Association and Thomas H. Noble, superintendent of the timber operation of the Pioneer Iron Co.

Mr. L. W. Powell of Duluth, for many years assistant general manager of the Oliver Iron Mining Co. and latterly its general manager, has been appointed third vice president with a full power of all the affiliated copper companies at Bisbee, Ariz., known as the Cole group. To accept this position Mr. Powell has relinquished the office of general manager of the greatest iron mining company in the world.

OBITUARY.

Mr. C. F. Gildersleeve died at Kingston, Ont., recently. He was for ten years the general manager of the Richelieu & Ontario Navigation Co.

Mr. Alexander H. Brown, one of the best known marine engineers on the lakes, died at his home in Buffalo this week at the age of eighty-six years. He was a pioneer in lake traffic and served on some of the earliest steamers of the lakes.

Capt. Robert Todd, a well known lake captain, died at his home in Buffalo last week. He was born in Perthshire, Scotland, in 1832. During the Crimean war he served aboard the man-of-war Albion, and was awarded medal for gallant services at Inkerman and Sebastopol. In 1856 he came to the lakes, and for twenty-six years sailed boats for the late Capt. John Perew. In 1873 he bought the John Hutchinson and sailed her for thirteen years. He retired from active service about two years ago.

MR. FRANK A. JONES RE-ELECTED PRESIDENT.

At the annual convention of the Marine Engineers' Beneficial Association in Washington this week president Frank A. Jones was re-elected and Mr. Joseph Blanchett, business agent for the great lakes, was elected second vice president. A considerable movement developed for the election of Mr. Evan I. Jenkins of Cleveland as president, but Mr. Jenkins who has been in charge of the great lakes division of the association for several years, did not desire to longer continue in an official capacity in the association. He therefore declined to permit his name to be presented. He will serve as engineer on one of the new Cleveland Cliffs steamers during the coming season.

ITEMS OF GENERAL INTEREST.

A snag boat 125 ft. long, 28 ft. wide, will be built for the use of the government engineer at Dallas, Texas.

A silver service consisting of twenty-five pieces has just been presented to the battleship Ohio. The work was done by Shreve & Co., San Francisco, Cal.

The Robins Conveying Belt Co. has recently opened an office in the Frick Building, Pittsburg, Pa. Their resident engineer, Mr. G. I. Delamater, is prepared to receive inquiries from the vicinity of Pittsburg relating to conveying and hoisting machinery.

The Baltimore Ship Building & Dry Dock Co. and the Wm. Skinner & Sons Ship Building & Dry Dock Co., two of the enormous enterprises of Baltimore, are to be merged into one company. The capital stock of the joint corporation will be \$800,000 and bonds of an equal amount are to be issued.

The Harlan & Hollingsworth Co., Wilmington, Del., recently received contracts from the Long Island Railroad Co. for the construction of two steel ferry boats. They are to be 204 ft. long, 46 ft. beam and 17 ft. 6 in. deep. They will have Almy water-tube boilers and double compound fore and aft engines and are intended to make a speed of 15 miles an hour.

At a meeting of the executive committee of the National Board of Steam Navigation held in New York last week, the following legislative committee was appointed: H. O. Nickerson, James A. Henderson, Frederick Russell, Charles E. Davis Jr., J. M. Cherry and E. P. Foster. This committee will shortly go to Washington to appear before the board of supervising inspectors of steam vessel.

TRADE NOTES.

R. A. Humphrey's Son, 1021-23 Callowhill street, Philadelphia, Pa., has just put out a catalog devoted to tool bags, mail bags and bags of every description, including price list. It can be had for the asking.

The American Steel & Wire Co. has just put out a little catalog devoted to the Crown United States Soldered Twin Terminal rail bonds. The company is now equipped for rapidly making them of any size, capacity or design.

The increasing business of the Westinghouse Electric & Mfg. Co. in the territory covered by their Columbus, Ohio, office has necessitated their moving into larger quarters; they are now located in room 923 Columbus Savings & Trust building.

The Standard Roller Bearing Co. has just started the erection of a brass and iron foundry, 60 x 125 feet, two stories in height. Their crucible steel casting plant started in operation this week, the size of this building being 60 x 95 feet.

A conspicuous departure in the lighting of canals is that of the Welland canal near St. Catharines, Ont. Over 600 A. C. series arc lamps have been provided by the Canadian Westinghouse Co. and these have been in operation for the past few months and have given splendid service. This installation as a whole redounds great credit to the Ontario government, as

well to the consulting engineer, Mr. R. J. Parke, under whose direction the complete plant was installed.

The Robins Conveying Belt Co. has recently opened an office at Railway Exchange building, Chicago, Ill. Mr. C. Kemble Baldwin, the chief engineer of the company, is in charge of this office and is prepared to handle all inquiries from parties located in the middle west.

The Smooth-On Manufacturing Co., Jersey City, N. J., has put out a little pocket compass in which is conveniently advised the use of the different Smooth-On specialties. This pocket compass will be sent to any user of Smooth-On by the company upon the receipt of four cents in stamps.

An important order recently secured by the Canadian Westinghouse Co. was obtained from the Vancouver Power Co., of Vancouver, B. C. This order included a 1,500-H. P., 2,200 volt revolving field engine type generator, which will be direct connected to a Pelton water wheel. This is a duplicate of the generators now in operation in the power plant of this company and will operate in multiple therewith. The order includes switchboards, air blast transformers of 550-K. W. capacity. There is also included in the order a 1,000-K. W. 80-cycle rotary converter to operate 550 volts. This converter will furnish power for railway work and will be controlled direct from the switchboard.

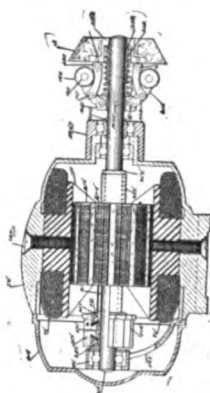
The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., has just put out a bulletin devoted to their type C transformers which have been placed on the market as an addition to the several forms with which users of alternating current apparatus are already familiar. The type C transformers possess operating characteristics approximately similar to Westinghouse O D transformers which are extensively used in all parts of the country. They are made single phase in capacities from 0.6 to 50 kw. inclusive.

Considerable comment is heard in Liverpool shipping and general business circles with reference to the establishment of an American consulate-general in Manchester, which is regarded as another blow to the prestige of Liverpool, following upon the extension of the Manchester consular area at the expense of Liverpool. Hitherto the Liverpool United States Consulate has ranked in importance next to the consulate-general in London, which, until Manchester was unduly glorified or exalted into a consulate-general, was the only one in the United Kingdom. It is felt by traders, shippers and others that if any cause existed why Lancashire should be honored with a consulate-general, the site of it ought to have been in Liverpool and not in Manchester. Liverpool is in closer contact with America, directly and indirectly, than Manchester can ever hope to be. Neither by land nor water is Manchester much personally patronized by Americans, while hardly a day passes at the Mersey port without the presence as departing or arriving guests of business men belonging to the United States. The adding of a portion of the Liverpool consular area some twelve months ago to the Manchester district is felt to be not only a great injustice to the business community of Liverpool, but is opposed to all those considerations, commercial and geographical, which are supposed to govern the state department at Washington in making consular boundaries and to put Liverpool within the jurisdiction of Manchester as a consulate-general, is simply incomprehensible from business and official consideration.

The Grand Harbor of the Masters & Pilots' Association is now in session in Washington. Resolutions were adopted by the harbor protesting against the passage by congress of the Littlefield anti-pilotage bill which if enacted into law, pilots declared will be a blow to pilotage below Cape Henry, Virginia.

APPLE STORAGE BATTERY CHARGER.

The illustration below shows the new Apple automatic storage battery charger for 1906. This charger is a dynamo of the well known Apple type, completely enclosed, therefore, water, dirt, dust and oil proof. In size it is a trifle larger than the old style Apple ignition dynamo and gives a considerably greater output of current than the old machine.



The Apple automatic storage battery charger will give a 3 ampere charging rate on an 8 volt battery at 1,400 R. P. M., a 3 ampere charging rate on a 6 volt battery at 1,200 R. P. M. and the same rate on a 4 volt battery at 1,000 R. P. M. The charger, as shown herewith, is fitted with a 4-in. Apple bevel friction governor, and the machine can be driven by belt, chain or gear, if so desired.

The armature is wound with best insulated wire, additional insulation being forced in by the vacuum impregnating system. The discs of the electrical iron are japped and then squeezed together to form the armature core under tremendous hydraulic pressure. The armature core is fitted on a brass sleeve, which in turn is fastened by a key to the tool steel shaft.

The fields are electro magnets excited by current generated by the machine itself. There is, therefore, no possibility of their losing their magnetism as so often happens with the so-called permanent magnets of high or low tension magnetos. The commutator is built up of segments of the best drawn copper with amber mica as insulation. There are no threaded parts to the commutator to loosen as the segments and insulation are forced together in assembling under great hydraulic pressure.

The Apple automatic storage battery charger will be furnished with two types of bearings, the plain bearing type with renewable phosphor bronze bearing, lubrication being provided by a felt wick oil cup, which feeds the oil by capillary attraction; the other the ball bearing type, which will be fitted with Hess-Bright ball bearings, carrying the well known Hess-Bright guarantee.

Among the claims made by the Dayton Electrical Manufacturing Co., who make Apple ignition apparatus, are these: That the new machine will give a maximum output at a minimum speed and that there will be no drop in voltage from no load to full rated capacity. The Apple automatic storage battery charger should prove a boon to the automobilist or launch owner who wishes to have a perfect charging plant for his storage batteries as practically an integral part of his engine.

TO RAISE THE ELDER AT LAST.

Capt. H. Baker, representative of the Reid Wrecking Company, of Detroit, Mich., has just arrived in Portland, Oregon, and has signed a contract with J. H. Peterson to raise the steamship Geo. W. Elder that went ashore in the Columbia river during a heavy fog Jan. 21, 1905. This comes as a climax of a series of negotiations pending since last fall, when Peterson, after buying the stranded vessel from the underwriters, abandoned his plan of raising the steamer and floating her to Portland on immense pontoons. The Elder apparently will present no formidable difficulties to a company with the equipments of the eastern wrecking firm. She lies in the water without any appearance of having changed her position since she went on the rocks. Yet, first the owners (Harriman System), and

then the underwriters, and finally Peterson had to give up the attempt to raise the steamship.

A few months ago the government authorities made a move to have something done with the vessel which it was claimed was a menace to navigation. However it is thought that the Reid Wrecking Co. will not have much difficulty in raising the Elder.

SAULT CANAL IMPROVEMENTS DELAYED.

Litigation between the United States government and private interests, which are seeking to divert water from the rapids of St. Mary's river, has held up an appropriation of \$1,200,000 for improvements to lockage facilities at the Sault. It is planned to double the width of the canal above the locks, but this has waited a year and may be delayed another season by the present litigation. It is desired to determine the title to islands Nos. 1 and 2 in the St. Mary's rapids where the Edison Sault Electric Co. owns permits to carry on certain operations and desires to obtain additional permits. Judge Wanty failed to pass on this point, but decided that the connecting stream known as St. Mary's river is a river and not merely a connecting link in the chain of lakes. This, if upheld, would give owners of land along the bank rights out to the center of the stream. This was obviously not satisfactory to the government nor to the Lake Carriers' Association which is taking the stand that all land from the Poe lock north to the international boundary be acquired by the government. Nor is it altogether pleasing to the rival power companies, inasmuch as title to the islands is still clouded.

STEEL STEAMERS FOR ORIENTAL TRADE.

Within two months, the Dollar Steamship Co., of San Francisco, announce that that firm will have two large steel steamships in the Oriental trade—plying from Puget Sound ports.

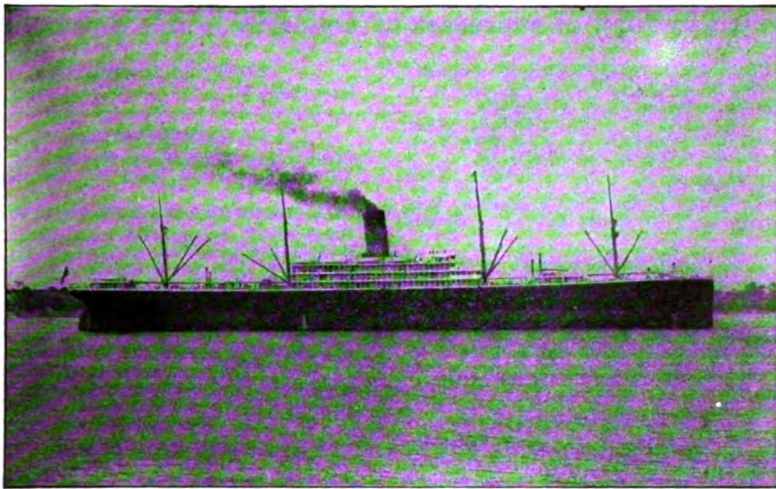
The steamer Hazel Dollar, sailed last week from Muckilteo, Wash., with a full cargo of lumber consigned to shippers at Tsintau, on the northern coast of China. By the middle of February the company's new steamer Bessie Dollar will reach San Francisco from Glasgow, Scotland. The Bessie Dollar is the latest addition to the company's fleet and cost about \$250,000. The vessel is a sister ship to the Hazel Dollar. Both steamships will be capable of carrying about 3,000,000 ft. of lumber each on a voyage. During the past two or three years the Dollar Steamship Co. have been sending steamers to the orient with lumber; but it is now very evident that the company expect to go into the trans-Pacific business on a much larger scale. The steamer Bessie Dollar will be used to carry freight exclusively, and no passenger accommodations have been provided.

DECISION REVERSED IN PART.

Recently Local Inspectors Bolles and Bulger, of San Francisco, suspended the licenses of Capt. H. Weber and Chief Engineer Jas. M. Spencer of the steamer Dispatch for three months. These officers were charged with neglect in failing to notify the proper authorities of the condition of the oil tanks and the boilers. A fire occurred as a result and a lad named James Mitchell lost his life, and several other boys were severely injured. The men appealed to Supervising Inspector Birmingham who reviewed the testimony. He reduced the term of suspension one-half—suspending the licenses for 45 days.

The steamer building at the Wyandotte yard of the American Ship Building Co. for the L. C. Smith Transportation Co., will be named in honor of Harry Coulby, president and general manager of the Pittsburgh Steamship Co. The steamer is a duplicate of the Gary, and is 569 ft. over all, 549 ft. keel, 56 ft. beam, and 31 ft. deep.

Hyde Windlasses and Capstans



Steamship Minnesota equipped with Hyde Windlass and Capstans.

Selected for the Minnesota and Dakota of the Great Northern Steamship Co.'s fleet—the largest vessels ever built in the United States. They are also being installed on nearly all of the vessels now building for the Navy Department, Revenue Cutter service, Lighthouse Board and the United States Coast Survey.

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For a more complete classification than that represented by advertisers in the Marine Review, see the **BLUE BOOK OF AMERICAN SHIPPING**, marine and naval directory of the United States, published by The Marine Review, Cleveland.

See accompanying index of Advertisers for full addresses of concerns in this directory.

AIR COMPRESSORS, AIR HOISTS, ETC.
Great Lakes Engineering Works.....Detroit.
Mietz, Aug. New York.

AIR PORTS, DEAD LIGHTS, ETC.
Marine Mfg. & Supply Co.....New York.

AIR PUMPS AND APPLIANCES.
Fore River Ship & Engine Co., Quincy, Mass.
Great Lakes Engineering Works.....Detroit.

ANCHORS.
Bowers, L. M. & Co.....Binghamton, N. Y.

ANTI-FRICTION METALS.
Cramp, Wm. & Sons.....Philadelphia.

ARTIFICIAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Sturtevant, B. F., Co.....Hyde Park, Mass.

ASH EJECTORS.
Great Lakes Engineering Works.....Detroit.

ATTORNEYS AND PROCTORS IN ADMIRALTY.

Glichrist, Albert J.....Cleveland.
Goulder, Holding & Masten.....Cleveland.
Hoyt, Dustin & Kelley.....Cleveland.
Jenkins, Russell & Richelberger.....Cleveland.
Kremer, C. E.....Chicago.
MacDonald, Ray G.....Chicago.
Shaw, Warren, Cady & Oakes.....Detroit.
White, Johnson, McCaslin & Cannon Cleveland

BAROMETERS, MARINE GLASSES, ETC.
Ritchie, E. S. & Sons.....Brookline, Mass.

BELTING (LEATHER).
Republic Belting & Supply Co.....Cleveland.

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Cleveland Block Co.....Cleveland.

BLOWERS.
Power Specialty Co.....Detroit.
Sturtevant, B. F. Co.....Hyde Park, Mass.

BOAT BUILDERS.
Draia, Theo. & Son.....Wilmington, Del.
Kahnweiler's Sons, David.....New York.
Lane & DeGroot.....Long Island City, N. Y.
Marine Construction & D. D. Co.....
.....Mariner's Harbor, S. I., N. Y.
Truscott Boat Mfg. Co.....St. Joseph, Mich.
Willard, Chas. P. & Co. Winthrop Harbor, Ill.

BOILER CLEANING DEVICE.
Power Specialty Co.....Detroit.

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The Bird-Archer Co.....New York.
Dearborn Drug & Chemical Works.....Chicago.

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Almy Water Tube Boiler Co., Providence, R. I.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Cramp, Wm. & Sons.....Philadelphia.
Dearing Water Tube Boiler Co.....Detroit.
Detroit Ship Building Co.....Detroit.
East End Boiler Works.....Detroit.
Fletcher, W. A. & Co.....Hoboken, N. J.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Kingsford Foundry & Machine Works.....
.....Oswego, N. Y.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher Water Tube Boiler Co.....New York.
Newport News Ship Building Co.....
.....Newport News, Va.

BOILER MANUFACTURERS—Continued.
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Northwestern Steam Boiler & Mfg. Co.....
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Quintard Iron Works Co.....New York.
Roberts Safety Water Tube Boiler Co.....
.....New York.
Stirling, The Co.....New York.
Superior Ship Building Co.....Superior, Wis.
Taylor Water Tube Boiler Co.....Detroit.

BOILER RIVETS.
Bourne-Fuller Co.....Cleveland.

BOILER STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co., Cuyahoga Falls, O.

BRASS AND BRONZE CASTINGS.
Cramp, Wm. & Sons.....Philadelphia.
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Great Lakes Engineering Works.....Detroit.
Lunkenheimer Co.....Cincinnati.
Macbeth Iron Co.....Cleveland.

BRIDGES, BUILDERS OF.
Cowing, John P.....Cleveland.
Scherzer Rolling Lift Bridge Co.....Chicago.

BUCKETS, ORE AND COAL.
Brown Hoisting & Conveying Machine Co.
.....Cleveland.

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"Long Arm" System Co.....Cleveland.

CABIN AND CABINET FINISHING WOODS.
Martin-Barrise Co.....Cleveland.

CANVAS SPECIALTIES.
Baker & Co., H. H.....Buffalo.
Bunker, E. A.....New York.
Upson-Walton Co.....Cleveland.
Republic Belting & Supply Co.....Cleveland.

CAPSTANS.
American Ship Windlass Co., Providence, R. I.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

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Smooth-On Mfg. Co.....Jersey City, N. J.

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Boston & Lockport Block Co.....Boston, Mass.

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Penton Publishing Co.....Cleveland.
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Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.

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Brown Hoisting Machinery Co. (Inc.).....
.....Cleveland.

COMPASSES.
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COMPASS CORRECTORS.
How, Benj. V.....Boston

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Thropp & Sons Co., John E., Trenton, N. J.

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Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Hubbell Co., H. W.....Saginaw, Mich.
Lake Superior Contracting & Dredging Co.,
.....Duluth, Minn.
Smith Co., J. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H., Milwaukee.
Sullivan, M.....Detroit.

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Upson-Walton Co.....Cleveland.

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Armstrong Cork Co.....Pittsburg, Pa.
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Brown Hoisting Machinery Co.....Cleveland.

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Schrader's Son, Inc., A.....New York.

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Chicago Ship Building Co.....Chicago.
Craig Ship Building Co.....Toledo, O.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co.....
.....Newport News, Va.
Shipowners Dry Dock Co.....Chicago.
Superior Ship Building Co.....Superior, Wis.
Tietjen & Lang Dry Dock Co.....Hoboken, N. J.

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Manitowoc Dry Dock Co.....Manitowoc, Wis.

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General Electric Co.....Schenectady, N. Y.
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Sturtevant, B. F. & Co.....Hyde Park, Mass.
Thropp & Sons, John E.....Trenton, N. J.

ECONOMIZERS, FUEL.
Sturtevant Co., B. F.....Hyde Park, Mass.

ELECTRIC HOISTS AND CRANES.
General Electric Co.....Schenectady, N. Y.

WANTED and FOR SALE Department.

PROPOSALS.

PROPOSALS FOR TWO SNAGBOATS.—U. S. Engineer Office, Vicksburg, Miss., Jan. 8, 1906. Sealed proposals, in triplicate, for construction and delivery of two steel snagboats will be received here until 12 noon, standard time, March 10, 1906, and then publicly opened. Information furnished on application. G. M. Hoffman, Capt. Engineers.

FOR SALE.

For Sale

Steamer Oregon lying in Milwaukee; Length of keel, 197 ft.; beam, 33 ft.; depth of hold, 13 ft. 9 in. Built in 1892, rebuilt 1903. Registered tonnage, 779 gross, 557 net. Boiler built in 1887, M. Riter, Buffalo, 16 ft. long, 120 inches diameter, allowed 100 pounds steam. Engine steeple compound, 20 x 40, 32 inch stroke. Capacity, lumber average 735 M ft.; wheat, 41,000; hard coal, 1200; soft coal, 1150; ore, 1100. J. A. CALBICK & CO., 44-2 Sherman St., Chicago, Ill.

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Tug Fashion, 65 ft. long, 16 ft. wide, 7½ ft. depth. Allowed 125 pounds steam. New decks and bulwarks last year. Engine 16 x 16. A bargain.

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FOR SALE,—One fore and aft compound marine engine, 27 cylinders, and 50 x 40. Built by the D. D. D. Co. Enquire of THE MONTAGUE IRON WORKS, Montague, Mich.

FOR SALE.

Steam Barge for Sale.

For Sale.—Steam barge, 131 ft. keel, 25 ft. beam, 9 ft. deep. Capacity, lumber, 260 M ft.; coal, 400 tons. Good power; can handle two or three barges. Everything pertaining to this boat is in good condition. Terms cash. Address Lock Box 35, St. Clair, Mich.

WANTED.

Wanted.

Small light draft Steam Barge, carrying capacity 350 to 400 tons.

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Tug and Scow.

Canadian bottoms preferred. Small and medium sizes. Give full particulars and best cash prices. Address Box 92 MARINE REVIEW, Cleveland, O.

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CLEVELAND, 1107-8 Williamson Bldg.

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PRICE \$5.00

FOR SALE BY

THE MARINE REVIEW, Cleveland

Buyers' Directory of the Marine Trade.—Continued.

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Mietz, Aug. New York.
Sturtevant, B. F. & Co.....Hyde Park, Mass.
Thropp & Sons, John E.....Trenton, N. J.

ENGINE BUILDERS, MARINE.

American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Chase Machine Co.....Cleveland.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Detroit Ship Building Co.....Detroit.
Fletcher, W. & A. Co.....Hoboken, N. J.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit, Mich.
Hall Bros. Philadelphia.
Lockwood Mfg. Co.....East Boston, Mass.
Maryland Steel Co.....Sparrows Point, Md.
Mietz, Aug. New York.
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